

# NATIONAL YOUTH COUNCIL



Mezzanine, Citadelle Mall  
Port Louis

T: 206 1784

E: [nycmauritus@gmail.com](mailto:nycmauritus@gmail.com)

## Open National Bidding for Works

### Synthetic Flooring and Associated Works to Mahebourg and Helvetia Youth Centres

**Procurement Reference No: NYC/PROC/22/2021-2022**

**Issued on: 22 June 2022**

## Section I: Instruction to Bidders

### 1. Introduction

The **National Youth Council** also referred as the Employer, invites eligible local contractors to submit their bid for the works described in detail hereunder. Any resulting contract shall be subject to the terms and conditions referred to in this document.

**The Works are “Synthetic Flooring and Associated works to Mahebourg and Helvetia Youth Centres”.**

**Participation is limited to citizens of Mauritius or entities incorporated in Mauritius. Joint Ventures should be among entities incorporated in Mauritius**

1.1 Clarifications, if any, should be addressed to: ***The Secretary, National Youth Council, by email on [nycmauritius@gmail.com](mailto:nycmauritius@gmail.com)***

The *Employer* will respond in writing to any request for clarification, provided that such request is received 14 days prior to the deadline for submission of bids.

The Employer shall respond to such request at latest 7 days prior to the deadline set for submission of bids.

1.2 Bidders are advised to carefully read the complete Bidding document, including the Particular Conditions of Contract in Section IV, before preparing their bids. The standard forms in this document may be retyped for completion but the Bidder is responsible for their accurate reproduction.

### 2. Validity of Bids

The bid validity period shall be **90 days** from the date of bid submission deadline.

### 3. Works Completion Period

The Intended Completion period is **120 calendar days** from start date of works.

### 4. Site Visit

Bidders or their designated representatives *are requested to carry out site visit to take cognizance of the works and site*. The purpose of the site visit is for bidders to know the site, its difficulties and to ask any clarification if any. Bidder will need to make arrangement for such visit by calling Mr D. Adjodha, M: 5250 8822

### 5. Sealing and Marking of Bids

Bids should be sealed in a single envelope, clearly marked with the Procurement Reference Number, addressed to the Public Body with the Bidder's name at the back of the envelope.

### 6. Submission of Bids

Bids (hard copy and soft copy on CD) should be deposited in the Bid Box located at **Mezzanine, Citadelle Mall, Port Louis** not later than **19 July 2022 by 14.00 hours** at latest. Bids by post or hand delivered should reach the above-mentioned address by the same date and time at latest. Late bids will be rejected. Bids received by e-mail will not be considered.

### 7. Bid Opening

Bids will be opened by the NYC at **Mezzanine, Citadelle Mall, Port Louis** on **19 July 2022 at 14.15 hours**. Bidders or their representatives may attend the Bid Opening if they choose to do so.

## 8. Evaluation of Bids

The Public Body shall have the right to request for clarification during evaluation. Offers that are substantially responsive shall be compared on the basis of evaluated cost to determine the lowest evaluated bid.

## 9. Eligibility Criteria

To be eligible to participate in this bidding exercise, Bidder should:

- i. Have the legal capacity to enter into a contract to execute the works;
- ii. Be duly registered with the CIDB under the grade that would allow him to perform the value of works for which he is submitting his bid. (Note 1)
- iii. Not be insolvent, in receivership, bankrupt, subject to legal proceedings for any of these circumstances or in the process of being wound up;
- iv. Not have had your business activities suspended;
- v. Not be under a declaration of ineligibility by the Government of Mauritius in accordance with applicable laws at the date of the deadline for bid submission or appearing on the ineligibility lists of African Development Bank, Asian Development Bank, European Bank for Reconstruction and Development, Inter-American Development Bank Group and World Bank Group;
- vi. Not have a conflict of interest in relation to this procurement requirement; and
- vii. Have a Business Registration Card.

**Note:** Sub-contractors undertaking works are also subject to registration with CIDB as applicable to Contractors.

## 10. Qualification and Experience Criteria

Bidders should have the following minimum qualifications and experience:

- (a) Valid registration certificate with the CIDB in **Building Construction works or Civil Engineering construction works** under the grade that will enable the contractor to perform the works quoted for.
- (b) Specific experience in at least two works including synthetic flooring of a similar nature over the last 10 years, each of value not less than MUR 2.5M that have been successfully completed. **To submit proof for the specific works as completed by the contractor.**
- (c) A Site Agent having as minimum qualification: A diploma in construction related field and 5 years' experience as site agent in the construction sector; or any equivalent qualifications acceptable to the Public body.
- (d) Minimum amount of liquid assets and/or credit facilities net of other contractual commitments of the Bidder of the amount of MUR 1.0 M.
- (e) Audited account as file at the Registrar for the last 3 Years to demonstrate current soundness of contractor financial position.
- (f) A foreman with at least 10 years' experience in the construction field.
- (g) A health and safety officer having a min. of 3 years as experience.
- (h) One Electrical Engineer registered with the Council of Registered Engineers of Mauritius having at least 5 years post registration experience to attend all site meetings, to supervise all electrical works, to submit all shop drawings and technical datasheet, to reply to queries on technical issues and to act as the representative of the Contractor for Electrical Works.

**Bidders are requested to submit recent signed CV and undertaking of each key personnel. Bidders failing to submit these information or appropriate key personnel may not be disqualified.**

## 11. Contents of bid

The Bid shall comprise the following:

- (a) Duly filled Bid Submission Form;
- (b) Duly filled Priced Bill of Quantities
- (c) Duly filled Qualification Information Form and attachments required
- (d) Report on the financial standing of the Bidder for the last three years, such as certified copies of Financial Statements or Audited Accounts as filed at the Registrar of Companies before the deadline set for submission of bids
- (e) Valid Registration certificate with the CIDB, as applicable
- (f) Recent Signed C.V and undertaking of the proposed Site Agent, Foreman, Health and Safety Officer, Electrical Technician
- (g) Documentary evidence of liquid assets and/or credit facilities (Note 1);
- (h) Any other documents deemed necessary as per the requirements of this bidding document

**Note: Bidders to demonstrate access to, or availability of, financial resources such as liquid assets, lines of credit, and other financial means, other than any contractual advance payments to meet the overall cash flow requirements for the contract and its current commitments. Documentary evidence may comprise but not limited to Bank certificate, Certificate from Auditors, Certificate from a Professional Accountant registered with MIPA, Certificate from Insurance companies.**

## 12. Joint Venture

**Bids submitted by a joint venture of two or more firms as partners shall comply with the following requirements:**

- (a) The Bid shall include all the information required as per the Qualification Information form for each joint venture partner;
- (b) The Bid shall be signed so as to be legally binding on all partners;
- (c) The Bid shall include a copy of the agreement entered into by the joint venture partners defining the division of assignments to each partner and establishing that all partners shall be jointly and severally liable for the execution of the Contract in accordance with the Contract terms; **alternatively**, a Letter of Intent to execute a joint venture agreement in the event of a successful bid shall be signed by all partners and submitted with the bid, together with a copy of the proposed agreement;
- (d) One of the partners shall be nominated as being in charge, authorized to incur liabilities, and receive instructions for and on behalf of any and all partners of the joint venture; and
- (e) The execution of the entire Contract, including payment, shall be done exclusively with the partner in charge.

## 13. Prices and Currency of Payment

Bidders should quote for the whole works. Prices for the execution of works shall be quoted and fixed in Mauritian Rupees. Items for which no rate or price is entered by Bidders, shall not be paid for by the Public Body when executed and shall be deemed covered by the other rates and prices in the Bill of Quantities.

Bids shall cover all costs of labour, materials, equipment, overheads, profits and all associated costs for performing the works, and shall include all duties. The whole cost of performing the works shall be included in the items stated, and the cost of any incidental works shall be deemed to be included in the prices quoted.

Bidders are required to submit their bid prices **exclusive of VAT**.

#### 14. Bid Securing Declaration

Bidders are required to subscribe to a Bid Securing Declaration in the Bid Submission Form.

#### 15. Margin of Preference

Margin of Preference shall not apply.

#### 16. Award of Contract

The Bidder having submitted the **lowest evaluated responsive bid** and qualified to perform the works shall be selected for award of contract. Award of contract shall be by issue of a Letter of Acceptance in accordance with terms and conditions contained in Section IV: General Conditions of Contract and Particular Conditions of Contract.

#### 17. Performance Security and signing of contract

Within twenty-eight (28) days of the receipt of the Letter of Acceptance from the *Employer*, the **successful Bidder shall furnish a Performance Security**, in the amount equal to **10% of the Bid price (inclusive of VAT)**, in accordance with the conditions of contract, using for that purpose the Performance Security Form included in Section V Contract Forms.

The contract agreement shall be signed within 28 days after the successful bidder receives the letter of acceptance unless the parties agree otherwise.

Failure of the successful Bidder to submit the above-mentioned Performance Security or sign the contract within the required time may constitute sufficient grounds for the annulment of the award.

#### 18. Notification of Award and Debriefing

Prior to the expiration of the period of bid validity, the Employer shall, for contract amount above Rs 15 million, notify the selected bidder of the proposed award and accordingly notify unsuccessful bidders. Subject to Challenge and Appeal, the Employer shall notify the selected Bidder, in writing, by a Letter of Acceptance for award of contract. Until a formal contract is prepared and executed, the notification of award shall constitute a binding Contract.

The Public Body shall after award of contract, exceeding Rs 1 million and up to Rs 15 million, promptly inform all unsuccessful bidders in writing of the name and address of the successful bidder and the contract amount.

Furthermore, the Public Body shall attend to all requests for debriefing for contract exceeding Rs 1 million, made in writing within 30 days the unsuccessful bidders are informed of the award.

#### 19. Advance Payment

The Public Body shall provide an Advance Payment on the Contract Price as stipulated in the General Conditions of Contract. The Advance Payment shall be guaranteed by an Advance Payment Security as per the format contained in Section V.

The Advance Payment shall be limited to 10% percent of the Contract Price, less any provisional and contingencies sums.

#### 20. Integrity Clause

The Public Body commits itself to take all measures necessary to prevent corruption and ensures that none of its staff, personally or through his/her close relatives or through a third party, will in connection with the bid for, or the execution of a contract, demand, take a promise for or accept, for him/herself or third person, any material or immaterial benefit which he/she is not legally entitled to.

## **21. Rights of Public Body**

The National Youth Council reserves the right:

- (a) To split the contract as per the lowest evaluated cost per lot; and
- (b) To accept or reject any bid or to cancel the bidding process and reject all bids at any time prior to contract award without incurring any liability to the Public body.

## **22. Challenge and Appeal**

Unsatisfied bidders shall follow procedures prescribed in Regulations 48, 49 and 50 of the Public Procurement Regulations 2008 to challenge procurement proceedings and award of procurement contracts or to file application for review at the Independent Review Panel.

The address, Telephone & Fax Number & Email address to file Challenges in respect of this procurement is:

**The Secretary  
National Youth Council  
Mezzanine, Citadelle Mall  
Port Louis  
T: +230 206 1555  
E: [nycmauritius@gmail.com](mailto:nycmauritius@gmail.com)**

The address to file Application for Review is:

**The Chairperson  
Independent Review Panel,  
5<sup>th</sup> Floor, Belmont House  
Intendence Street  
Port Louis  
T: +230 260 2228  
E: [irp@govmu.org](mailto:irp@govmu.org)**

## Section II: Bidding Forms

**Note: Bidders are required to fill all the forms in this section and submit as part of their bid.  
Non-submission of any form may lead to rejection of the bid**

### Bid Submission Form

Date: \_\_\_\_\_

Bid's Reference No.: \_\_\_\_\_

Procurement Reference No: \_\_\_\_\_

To:

We, the undersigned, declare that:

- (a) We have examined and have no reservations to the Bidding Documents, including Addenda issued;
- (b) We offer to execute in conformity with the Bidding Documents the following Works:  
\_\_\_\_\_;
- (c) The total price of our Bid excluding VAT is: \_\_\_\_\_ (MUR):
- (d) Our bid shall be valid for a period of 90 days from the date fixed for the bid submission deadline in accordance with the Bidding Documents or up to **Monday 17 October 2022**, whichever is later, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- (e) We hereby confirm that we have read and understood the content of the Bid Securing Declaration attached hereto and subscribe fully to the terms and conditions contained therein, if required. We understand that non-compliance to the conditions mentioned may lead to disqualification.
- (f) If our bid is accepted, we commit to obtain a Performance Security in accordance with the Bidding Document;
- (g) We, including any subcontractors or suppliers for any part of the contract, do not have any conflict of interest in accordance with ITB 8;
- (h) We are not participating, as a Bidder in more than one bid in this bidding process;
- (i) Our firm, its affiliates or subsidiaries, including any Subcontractors or Suppliers for any part of the contract, has not been declared ineligible under the laws of Mauritius;
- (j) We have taken steps to ensure that no person acting for us or on our behalf will engage in any type of fraud and corruption as per the principles described hereunder, during the bidding process and contract execution:
  - i. We shall not, directly or through any other person or firm, offer, promise or give to any of the Public Body's employees involved in the bidding process or the execution of the contract or to any third person any material or immaterial benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.
  - ii. We shall not enter with other Bidders into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelisation in the bidding process.
  - iii. We shall not use falsified documents, erroneous data or deliberately not disclose requested facts to obtain a benefit in a procurement proceeding.

We understand that transgression of the above is a serious offence and appropriate actions will be taken against such bidders.

- (k) We understand that this bid, together with your written acceptance, shall constitute a binding contract between us, until a formal contract is prepared and executed;
- (l) We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive; and
- (m) If awarded the contract, the person named below shall act as Contractor's Representative:

Name:

In the capacity of:

Signed:

Duly authorized to

sign the Bid for and

on behalf of:

Date:

Seal of Company



## BID SECURING DECLARATION

By subscribing to the undertaking in the Bid Submission Form:

I/We accept that I/we may be disqualified from bidding for any contract with any Public Body for the period of time that may be determined by the Procurement Policy Office under section 35 of the Public Procurement Act, if I am/we are in breach of any obligation under the Bid conditions, because I/we:

- (a) Have modified or withdrawn my/our bid after the deadline for submission of bids during the period of bid validity specified by the Bidder in the Bid Submission Form; or
- (b) Have refused to accept a correction of an error appearing on the face of the bid; or
- (c) Having been notified of the acceptance of our bid during the period of bid validity, (i) have failed or refused to execute the Contract, if required, or (ii) have failed or refused to furnish the Performance Security, in accordance with the Instructions to Quote.

I/We understand this Bid Securing Declaration shall cease to be valid:

- (a) In case I/we am/are the successful bidder, upon our receipt of copies of the contract signed by you and the Performance Security issued to you by me/us; or
- (b) If I am/we are not the successful Bidder, upon the earlier of
  - (i) The receipt of your notification of the name of the successful Bidder; or
  - (ii) Thirty days after the expiration of the validity of my/our bid.

In case of a Joint Venture, all the partners of the Joint Venture shall be jointly and severally liable.

## Qualification Information

### 1. Individual Bidders or Individual Members of Joint Ventures

- 1.1 Constitution or legal status of Bidder: *[attach copy]*  
Place of registration: *[insert]*  
Principal place of business: *[insert]*

1.2 Bidder shall provide *[insert number]* of works of a nature and amount similar to the Works performed as Contractor over the last 5 years.

Project/Contract name and country	Name of client and contact person	Type of work performed and year of completion	Value of contract (national currency)
(a)			
(b)			

- 1.3 Proposed subcontracts and firms involved. Refer to General Conditions of Contract Clause 7.

Sections of the Works	Value of subcontract	Subcontractor (name and address)	Experience in similar work
(a)			
(b)			

*[Bidders have to ascertain that sub-contractors executing works are duly registered with the CIDB in accordance with CIDB Act 2008.]*

- 1.4 Name, address, and telephone, telex, and facsimile numbers of banks that may provide references if contacted by the Public Body.

### 2. Additional

- 2.1 Bidders should provide any additional information Requirements requested in the Bidding Document.

## BILL OF QUANTITIES

Procurement Reference Number: **NYC/PROC/22/2021-2022**

**Synthetic Flooring and Associated works to Mahebourg and Helvetia Youth Centres.**

**All quantities are re-measurable**

Item No	Brief Description of Works	Unit of Measure	Quantity	Unit Price (Rs)	Total Price (Rs)
A	<b><u>Preliminaries and General Costs</u></b> <i>Bidders are required to submit their bid on a fixed price basis which is to include for all possible increase in costs of Labour, materials, freight, transport, fuel, changes in exchange rates, taxes excluding VAT.</i> <b><i>Allow for preliminaries and general costs in connection with, but not limited to, the following:</i></b>				
A1	The Contractor is to allow for costs related to Preliminaries and General Conditions of Contract requirements including the following but not limited to: setting out of the works, site management, Contractor's office, overheads, tools, plants, store, stacking and storage of materials, Project Manager's facilities, insurances, bonds, watchmen, light, electricity, signboard, protection of existing building and internal amenities, security of workmen, office equipment etc and works on site, temporary hoardings and gantries, police requirements, laboratory test on such as compaction, coring for bitumen content and thickness among others on existing tarmac as requested by Project Manager.	SUM			
A2	Allow for the provision of safe means of working on all sites and at all levels in accordance with the Health and Safety Act (2005), in particular to Part VI of the Act. <b>To submit a health and safety report prior to start the works.</b>	SUM			
	<b>Bill No 1: Preliminaries: Total Brought Forward to Main Summary</b>				

Item No	Brief Description of Works	Unit of Measure	Quantity	Unit Price (Rs)	Total Price (Rs)
<b>B</b>	<b>Mahebourg YC</b>				
<b>B1</b>	New concrete asphalt 40mm thick. Reparation of damaged tarmac ( 20sqm) by cutting and removal of damaged tarmac, spreading, laying and compacting 100mm thk crusher run prior to lay concrete 30mm asphalt 0/10 level to existing tarmac	m <sup>2</sup>	610		
<b>B2</b>	Supply and lay polymer acrylic synthetic resin flooring on the tarmac over the whole surface area. The floor finish shall be fully levelled. Bidder to submit technical specification for approval.	m <sup>2</sup>	610		
<b>B3</b>	Supply and install standard movable Mini soccer post made up of galvanised circular section or equivalent with all netting. To submit Technical specification for approval.	Nr	2		
<b>B4</b>	Supply and install vertical adjustable Posts and netting for volleyball pitch all as per norm.	Nr	2		
<b>B5</b>	Supply and fix basketball board with all fascia board, ring, netting, vertical support all as per sports norm etc all resistant to all type of weather and are durable. To submit Technical specification for approval.	Nr	2		
<b>B6</b>	Supply and install movable hand ball post of standard size with all netting and supports.	Nr	2		
<b>B7</b>	Supply and fix new gate with panel ribs and 75x50x2.5 RHS as frame all painted and locking devices. To remove existing one	m <sup>2</sup>	17		
<b>B8</b>	Removal/dismantle of existing basketball metal support anchored in tarmac and make good to damage surface.	Nr	2		
<b>B9</b>	Supply and paint 50mm wide line marking for volleyball/soccer/basketball/handball suitable for outdoor games. To submit technical specification for paint to be used and the colour for each game shall vary as approved by client.				
	(a) Volleyball pitch	M	95	300	
	(b) Basketball Pitch	M	160	300	
	(c) Soccer pitch	M	150	300	
	(c) Handball pitch	M	100	300	
<b>Bill No 2: Mahebourg YC: Total Brought Forward to Main Summary</b>					

Item No	Brief Description of Works	Unit of Measure	Quantity	Unit Price (Rs)	Total Price (Rs)
<b>C</b>	<b><u>Helvetia YC</u></b>				
<b>C1</b>	Removal of all existing brick including hoarding/barrage	m <sup>2</sup>	150		
<b>C2</b>	Excavation in any type of materials all around the existing pitch. Care to be taken not to damage the pitch. Excavation to be carried out with breaker/compressor/hand.	M3	90		
<b>C3</b>	Supply and lay compacted 0/200 spalls	M <sup>3</sup>	55		
<b>C4</b>	Supply and lay compacted 0/20 crusher run	M <sup>3</sup>	25		
<b>C5</b>	Supply and lay compacted 0/10 concrete asphalt 40mm thk. To submit at least 3 cores to chk thickness and bituminous content in the laboratory.	m <sup>2</sup>	150		
<b>C6</b>	Supply and lay polymer acrylic synthetic resin flooring on the tarmac over the whole surface area. The floor finish shall be fully levelled. Bidder to submit technical specification for approval.	m <sup>2</sup>	505		
<b>C7</b>	Supply and paint 50mm wide line marking for volleyball/soccer/basketball/handball suitable for outdoor games. To submit technical specification for paint to be used and the colour for each game shall vary as approved by client.				
	(a) Volleyball pitch	m	95		
	(b) Basketball Pitch	m	160		
	(c) Soccer pitch	m	150		
	(d) Handball pitch	m	100		
<b>Bill No 3: Helvetia YC: Total Brought Forward to Main Summary</b>					

Item No	Brief Description of Works	Unit of Measure	Quantity	Unit Price (Rs)	Total Price (Rs)
<b>C</b>	<b><u>Helvetia YC</u></b>				
<b>C8</b>	Supply and install standard movable Mini soccer post made up of galvanised circular section or equivalent with all netting. To submit Technical specification for approval.	Nr	2		
<b>C9</b>	Supply and install vertical adjustable Posts and netting for volleyball pitch all as per norm.	Nr	2		
<b>C10</b>	Supply and fix basketball board with all fascia board, ring, netting, vertical support all as per sport norm etc all resistant to all type of weather and are durable. To submit Technical specification for approval.	Nr	2		
<b>C11</b>	Supply and install movable hand ball post of standard size with all netting and supports	Nr	2		
<b>C12</b>	Cleaning all around the pitch up to the existing block wall, building etc. The site should be clear of weeds, shrubs, etc. and cart away.	m <sup>2</sup>	200		
	<b>Bill No 4: Helvetia YC: Total Brought Forward to Main Summary</b>				

## Main Summary

Bill No	Bill of Quantities	Amount (MUR)
1	Bill No 1: Preliminaries	
2	Bill No 2: Mahebourg YC	
3	Bill No 3: Helvetia YC	
4	Bill No 4: Helvetia YC	
5	Provisional sum for Electrical works	600,000
6	Contingency sum	300,000
	Total Amount Excl. VAT	

### Bill of Quantities Authorised By:

Name:		Signature:	
Position:		Date:	
Authorised for and on behalf of:		Company	

## Section III: Statement of Requirements

### A. SCOPE OF WORKS, SPECIFICATIONS AND PERFORMANCE REQUIREMENTS

#### SCOPE OF WORKS

The project consists of general synthetic flooring and associated works to Mahebourg and Helvetia Youth Centres.

The works will comprise of the following:

- Repair to existing tarmac and self-levelling with appropriate materials.
- New tarmac with excavation, compacted crusher run and concrete asphalt.
- Supply and lay polymer acrylic synthetic resin flooring 12mm thk or more suitable for outdoor sports such as volleyball/soccer/handball/basketball all as **per manufacture's specification and design** over the whole surface area of the playground. The floor finish shall be fully levelled. Bidder to submit technical specification for approval. To submit 10 years guarantee certificate.
- Line markings for volley/basket/soccer/handball. Special acrylic paint shall be used. To submit technical specification for approval. Dimensions of line marking to be as per standard applicable.
- Supply and install standard movable Mini soccer post made up of galvanised circular section or equivalent with all bracings, support for netting, netting. To submit Technical specification for approval
- Supply and install vertical adjustable Posts, pulleys and netting for volleyball pitch all as per norm.
- Supply and fix basketball board with all fascia board, ring, netting etc all resistant to all type of weather and are durable. To submit Technical specification for approval.
- Supply and install movable hand ball post of standard size with all netting and supports.



# SPECIFICATIONS

## **EXCAVATION**

### **Inspection of Site**

The Contractor is deemed to have visited the Site and to have ascertained the nature of the material to be excavated.

### **Dealing with water**

The Contractor's attention is drawn to the depths below ground level of the foundations and the consequent possibility of having to deal with water. Unless otherwise specified the Contractor will be required by pumping or other means to keep the excavations dry during construction.

### **Shoring of existing structure**

The Contractor's attention is drawn to the requirements for shoring parts of the structure of the existing building during construction and the consequent need to carry out the excavation in stages. He is not allowed to excavate within the proximity of the existing structure without the drawings and/or instructions by the Engineer to do so.

### **Excavation Dimensions:**

The excavations are to be executed to the widths and depths shown on the Drawings or to greater depths if instructed by the Engineer to obtain satisfactory foundations.

If the contractor excavates to any widths or depths greater than those shown on the Drawings, or as instructed by the Engineer he shall at his own expense fill in such widths or depths beyond that instructed or shown with concrete Grade "D" to the satisfaction of the Engineer.

### **Rock**

"Rock" means any hard material, which in the opinion of the Engineer can be removed only by use of compressors or by wedging and the Engineer's opinion shall be final. Decomposed rock, tuff or other material which can be removed by pick, traxcavator or other mechanical plant will not be classed as rock. All material classified as rock may, if approved by the Engineer, be used as hardcore filling and the measured quantities of imported filling will be adjusted accordingly. All rock so used must be broken to the required size as hereafter described before being used.

### **Blasting:**

No blasting will be permitted.

### **Bottom of excavations to receive foundations:**

The Contractor shall report to the engineer when secure bottoms to the excavations have been obtained. Any concrete or other work executed before the excavations have been inspected and approved, shall if so directed, be removed and now work substituted after the excavations have been approved, all at the Contractor's expense. The surface of the bottoms to excavations shall be levelled or graded to falls as required, with 50mm layer of concrete Grade "D" blinding (maximum 20mm gauge aggregate) and finished to a smooth surface with a wood float.

### **Hardcore filling:**

Hardcore for filling under float, etc, shall be good hard stone ballast to the approval of the Engineer, broken to pass not greater than a 150mm ring or to be 75% of the finished thickness of the layers being compacted whichever is the lesser and graded so that it can be easily and thoroughly compacted by rolling.

The filling is to be laid in layers each of a consolidated thickness not exceeding 225mm and well-watered and rolled with a vibrating roller (minimum 14 tons) or a ten-ton roller. Where rolling is impossible, compaction shall be by hand or mechanical tampers. The top surface of the hardcore shall be levelled or graded to falls as required and blinded with similar material broken to 25mm gauge and surfaced with a 25mm layer of stone dust, well-watered and rolled to receive concrete as described.

### **Materials found in excavations**

No material found in the excavation is to be used in the works without the written permission of the Engineer.

## **CONCRETE WORK**

### **Architect/Engineer**

For the purpose of the concrete structure the Structural Engineer shall be deemed invested with the duties and be the representative of the Architect.

### **Code of Practice**

All workmanship, materials, tests and performance in connection with the reinforced concrete work shall be in conformity with the latest edition of the British Standard Code of Practice (C.P. 110 "The Structural use of Concrete") where not inconsistent with these Preambles.

### **Supervision**

A competent person approved by the Engineer shall be employed by the Contractor, whose duty will be to supervise all excavation operations, making and erection of formwork, bending and fixing of reinforcement and all stages in the preparation and placing of the concrete. All cubes shall be made and site test carried out under his direct supervision, in consultation with the Engineer.

### **Contractor's plant equipment and construction procedures:**

Not less than 30 days prior to the installation of the contractor's plant and equipment for processing, handling, transporting, storing and proportioning ingredients and for mixing, transporting and placing of concrete, the contractor shall submit drawings for approval by the Engineer, showing the proposed general plant arrangement, together with a general description of the equipment he proposes to use.

After completion of the installations, the operation of the plant and equipment shall be subject to the approval of the Engineer.

Where these Preambles, the Bills of Quantities or the Drawings require specific procedures to be followed, such requirements are not to be construed as prohibiting the use by the Contractor of alternative procedures if it can be demonstrated to the satisfaction of Engineer, that equal results will be obtained by the use of such alternatives.

Approval of plant and equipment or their operation, or of any construction procedure, shall not operate to waive or modify any provisions or requirements contained in these preambles governing the quality of the materials or of the finished work.

### **Levels and Foundations:**

The foundations of the works shall be carried down to depths as may be directed by the Engineer and they must be cut as nearly to the size of the concrete as possible and the vacant spaces between the concrete and the solid ground, excepting where otherwise shown, must be carefully filled in as instructed by the Engineer.

All temporary timbering shall be removed but should any timber be left in or should any other work be done beyond that specified; it will be at the Contractor's own cost.

### **Tolerances:**

On all setting out dimensions of 7.5m and over a maximum non-cumulative tolerance of plus or 6mm will be allowed, and for those under 6m the allowable maximum non-cumulative tolerance will be plus or minus 3mm. On the cross-sectional dimensions of structural members, unless otherwise required by the Drawings, a maximum tolerance of plus or minus 3mm will be permitted.

The top surface of concrete floor slabs and beams shall be within 6mm of the normal level and line shown on the Drawings. Walls and columns shall be truly plumb and non-cumulative tolerance of 3mm in each storey and not more than 12mm out of plumb in their full height will be permitted. The contractor shall be responsible for the cost of all corrective measures required by the Engineer to rectify work which is not constructed within the tolerances set out above.

### **Materials generally:**

All materials which have been damaged, contaminated or have deteriorated or do not comply in any way with the requirements of these Preambles shall be rejected and shall be removed immediately from the site at the Contractor's own expense.

No materials shall be stored or stacked on suspended floors without the Engineer's prior approval.

### **Samples and Testing:**

Every facility shall be provided to enable the Engineer to obtain samples and carry out tests on the materials and construction. If these tests show that any of the materials or construction does not comply with the requirements of these Preambles, the Contractor will be responsible for the costs of the tests and the replacement of defective materials and/or construction.

### **Cement:**

Cement unless otherwise specified shall be Portland Cement of a Brand approved by the Engineer and shall comply with the requirements of B.S. 12, and a manufacturer's certificate of Test in accordance with B.S. 12 shall be supplied for each consignment delivered to the site.

Cement may be delivered to the site either in bags or in bulk.

If delivered in bags each bag shall be properly sealed and marked with the manufacturer's name and shall be stored in a weatherproof shed of adequate dimensions with a raised floor. Each consignment shall be kept separate and marked so that it may be used in the sequence in which it is received. Any bag found to contain cement which has set or partly set, shall be completely discarded and not used in the works. Bags shall not be stacked more than 1.5m in height.

If delivered in bulk the cement shall be stored in a waterproof silo either provided by the cement supplier or by the Contractor but in either case the silo shall be to the approval of the Engineer.

### **Aggregates:**

Aggregates shall conform with the requirements of B.S. 882 and the sources and types of all aggregates are to be approved in all respects by the Engineer before work commences.

The grading of aggregates shall be one within the limits set out in B.S. 882 and as later specified and the grading, once approved, shall be adhered to throughout the works and not varied without the approval of the Engineer. Fine aggregate shall be clean, crushed rock sand and coral sand, of hard quality and shall be free from lumps of stone, earth, loam, dust, salt, organic matter and any other deleterious substances. Coral sand shall be washed in running water to the satisfaction of the Engineer. It shall be graded within the limits of zone 1 or 2 of Table 2 of B.S. 882.

Coarse aggregate for concrete Grade 'A', 'B' and 'C' shall be crushed blue basalt stones to the approval of the Engineer. It shall be hard, clean and roughly cubical in shape, non-porous, free from dust, decomposed stone, clay, earthy matter, foreign substances or friable, thin, elongated or laminated pieces. It shall be graded within the limits of Table 1 of B.S. 882 for its respective nominal

size. If in the opinion of the Engineer the aggregate meets with the above requirements but is dirty or adulterated in any manner it shall be screened and/or washed with clean water, if he so instructs at the Contractor's expense.

Aggregates shall be delivered to the site in their prescribed sizes or gradings and shall be stock-piled separately on paved areas or boarded platforms in separate units to avoid intermixing, excessive segregation and contamination with other materials. On no account shall aggregates be stock-piled on the ground. Fine aggregates shall be allowed to drain until it has reached uniform moisture content before it is used.

### **Water**

The water used for mixing concrete shall be from an approved source, clean, fresh and free from harmful matter.

### **Admixtures:**

No admixtures except the ones specified for waterproof concrete shall be allowed. The Contractor may use an approved "plasticiser" which will be added to the mixing water in the proportion recommended by the manufacturer and strictly in accordance with their written instructions, to achieve better workability. No additional cost will be paid for the use of the plasticiser.

## **CONCRETE STRENGTHS**

### **Grades of Concrete:**

Grades 'A', 'B' and 'C' concrete shall have the following minimum strengths as given by Works Cube Tests:

	<b><u>Grade A</u></b>	<b><u>Grade B</u></b>	<b><u>Grade C</u></b>
Min. crushing) at 7 days	21	17	14
strength in) at 28 days	30	25	20
N/mm <sup>2</sup> )			

Grade 'D' and 'E' concrete shall be of the following nominal mixes and may be measured either by volume or by weight. No cube tests will be required for Grades 'D' and 'E' concrete. These grades will be used for unreinforced concrete, with a maximum slump of 50mm.

<b><u>Grade</u></b>	<b><u>D</u></b>	<b><u>E</u></b>
Nominal mix by concrete)	1.10	1.10 (with plums not exceeding 20% by total volume of concrete)
Max. gauge of coarse aggregate	40mm*	40mm*
(* or 20mm for blinding concrete where described).		

## **Measuring of Concrete Materials**

### **Cement**

The quantity of cement shall be measured by weight. Where delivered in bags, each batch of concrete is to use one or more whole bags of cement.

### **Aggregate**

- i. For Grades 'A', 'B' and 'C' concrete, aggregates may be measured by weight in weigh batching machine as described hereafter.

- ii. For Grades 'D' and 'E' concrete, aggregates shall be measured by weight or by volume. Where measured by volume, approved gauge boxes of such a size as will give the correct proportions shall be used.

### **Weigh batching machine**

Weigh batching machine shall be of an approved type and shall be properly maintained and checked for accuracy at weekly intervals.

### **Concrete Mixes 'A', 'B' and 'C'**

As specified above.

The Contractor shall have two alternatives to achieve the specified concrete strengths.

### **Alternative 1 Design Mix**

Contractor can use minimum amount of cement by weight per cubic metre of finished concrete as set out below, if he provides strict with CP 110 Clause 6.5. requirements for design mixes.

6.5.1 Target mean strength.

6.5.2 Evidence of suitability of proper mix proportions.

6.5.3 Trial mixes.

6.5.4 Additional Trial Mixes

The copies of this clause is available from the Engineer 's office on request by the contractor.

The minimum cement content by weight shall be

Minimum cement content  
per cubic metre of  
finished concrete

450 kg

360 kg

250 kg

### **Alternative 2**

If the contractor fails to achieve the requirements of alternative 1 and/or prefers nominal volumetric mix, he shall use the following:

	<b><u>Mix A</u></b> <b><u>1:13/16:2</u></b>	<b><u>Mix B</u></b> <b><u>1:1 ¾:3</u></b>	<b><u>Mix C</u></b> <b><u>1:2 ½:4</u></b>
Cement	1 bag of 50 kg	1 bag of 50 kg	1 bag of 50 kg
Crushed rock sand	1 cu. ft	1¼ cu.ft	1 7/8 cu.ft
Coral sand 10mm to 5mm	½ cu. ft	7/8 cu.ft	11/4 cu.ft
Graded aggregates 20mm to 10mm	5/8 cu.ft	7/8 cu.ft	1¼ cu. ft
Graded aggregates	1 7/8 cu. ft.	3 cu. ft	3 ¾ cu ft
Maximum water Cement ratio	.45	.50	.60
Maximum slump	50mm	50mm	50mm

Average works cube strength obtained from Work Cube Tests of nominal volumetric mixes shall be 10% higher than the minimum concrete strengths specified.

### **Ready Mix Concrete**

Ready mixed concrete may be used subject to the approval of the Engineer.

When it is used the contractor shall ensure that all the requirements of these specifications are complied with. The Engineer may at his discretion waive temporarily the requirements of preliminary trial mixes as required under the heading of trial mixes laid down for alternative design mix.

Further to above requirements the contractor shall ensure that supply and delivery of ready mixed concrete comply with the recommendations of M.S. 1926.

The concrete shall be transported to the site in approved containers and shall be continuously agitated until it is delivered on site. The Contractor shall ensure that no water is added after it is delivered.

For plant mixed concrete the contractor shall check that the delivery note for each batch shows the time when water is first added to the concrete materials, and the time interval between the delivery and the mixing of water is 20 minutes less than the final setting time of cement.

Samples of workcube shall be taken at the place where concrete is finally placed in the structural members.

### **Waterproof Concrete**

Where "waterproof concrete" is specified, sealcrete or other approved waterproofing material and plasticising agent shall be added to the mixing water in the proportion recommended by the manufacturers and strictly in accordance with their written instructions. Waterproof concrete shall be grade B mix and shall meet all the strength requirements of the specified grade, except that the fine aggregate shall consist solely of rock sand.

### **Changing proportion of Aggregates**

The Engineer may at any time during the contract, require the proportions of fine to coarse aggregates to be altered in order to produce a mix of greater strength or improved workability and provided that the total proportions of aggregate to cement remains unchanged, no claim for additional cost will be considered.

### **Testing Equipment**

The Contractor shall provide the following equipment for carrying out control tests on the site:

- a) Straight edges 3m and 1.2m long for testing the accuracy of the finished concrete;
- b) A graduated glass cylinder for use in the silt test for organic impurities in the sand;
- c) Slump test apparatus;
- d) Six-inch steel cube moulds with base plates and tamping rods to B.S. 1881.

### **Work Cube Tests**

Work cubes are to be made at intervals as required by the Engineer and the Contractor shall provide a continuous record of the concrete work. The cubes shall be made in approved 150mm moulds in strict accordance with the Code of Practice.

Six cubes shall be made on each occasion, three from different batches, of the concrete at the place where it is deposited.

Each cube shall be marked with a distinguishing number (numbers to run consecutively) and the date on which it is made. A record shall be kept on site giving the following particulars:

- (a) Cube No.
- (b) Date Made
- (c) Location in Work

- (d) 7-day Test

Date  
Strength

- (e) 28-day Test

Date  
Strength

Cubes shall be forwarded by the Contractor to an approved Testing Authority, in time to be tested two at 7 days and two at 28 days. The remaining two cubes shall be tested when necessary.

Copies of all work cube Test results shall be forwarded to the Engineer and one shall be retained on the site.

If the prescribed concrete strengths are not attained and maintained throughout the carrying out of the contract, the Contractor will be required to increase the proportion of cement and/or substitute better aggregates so as to give concrete which does comply with the requirements of the contract. The Contractor may be required to remove and replace at his own cost any concrete which fails to attain the required strength as ascertained by Work Cube Tests.

The Contractor must allow in his rates for all expenses in connection with the preparation, conveyance to the Testing Laboratory, and testing of cubes.

## **MIXING AND PLACING CONCRETE**

### **Concrete Mixer:**

The concrete shall be mixed only in approved power-driven mixers of a type and capacity suitable for the work. Mixers shall be of a capacity sufficient to take one whole bag of cement per batch. Smaller size mixers shall not be used. The mixer shall be equipped with an accurate water measuring device which shall be checked weekly for accuracy. All materials shall be thoroughly mixed dry before the water is added and the mixing of each batch shall continue for a period of not less than two minutes after the water has been added and until there is a uniform distribution of the materials and the mass is uniform in colour.

The entire contents of the mixed drum shall be discharged before recharging. The volume of mixed materials shall not exceed the rated capacity of the mixer. Whenever the mixer is started, 10% extra cement shall be added to the first batch and no extra payment will be made on this account.

### **Consistency:**

As a check on concrete consistency slump tests may be carried out and shall be in accordance with B.S 1881. The Contractor shall provide the necessary apparatus and allow for the costs of such tests. The slump of the concrete made with the specified water content, using dry materials, shall be determined and the water to be added under wet conditions shall be so reduced as to give approximately the same slump.

### **Conveying:**

The concrete shall be mixed as near to the place where it is required as is practicable to avoid rehandling and flowing, and only as much as is required for a specified section of the work shall be mixed at one time, such section being concerned and finished in one operation without delay.



All concrete must be efficiently skilled and used in the works within twenty (20) minutes of mixing. It shall be discharged from the mixer direct either into receptacles or barrows and shall be distributed by approved means which do not cause segregation or loss of ingredients or otherwise repair the quality of the concrete. Approved mechanical means of handling will be provided they are not longer than 6m and their slope do not exceed 1 vertical to 2 horizontal is not less than 1 vertical to 3 horizontals.

### **Depositing**

Placing of concrete in supported elements e.g slab, bed shall not be started until the concrete previously placed in top parts of columns is no longer plastic and has been in place at least for two hours.

Concrete shall be placed from a height not exceeding 1.3m directly into its permanent position and shall not be worked along the shutters to that position. Unless otherwise approved, concrete shall be placed in a single operation to the full thickness of slabs with beams and similar members. The Engineer shall allow concrete to be placed for walls exceeding 150mm thickness from a height approved system of formwork is used.

In addition, contractor will ensure that the concrete shall be deposited continuously such that no concrete shall be deposited on concrete which had hardened sufficiently to cause the formation of seams or places of weakness within the section. Placing shall be carried out at such a rate that the concrete which is being integrated with fresh concrete is still plastic.

Concrete in columns may be placed in a height of 3m with careful placing and vibration to achieve satisfactory results. Where the height of the column exceeds 3m suitable openings must be left in the shutters on that this maximum lift is not exceeded.

Concrete shall be placed continuously until completion of the part of the work between construction joints as specified hereinafter or of a part of approved extent. At the completion of a specified or approved part a construction joint of the form and in the positions hereinafter specified shall be made. A record of all such joints must be made by the contractor and a copy supplied to the Engineer.

## **CURING and PROTECTION**

### **Periods and means of curing and protection:**

Care must be taken that no concrete is allowed to become prematurely dry and the fresh concrete must be carefully protected within two hours of placing from rain, sun and wind by means of massive sacking, polythene sheeting, or other approved means. The protective layer and the concrete itself must be kept continuously wet for at least seven days after the concrete has been placed. The Contractor must allow for the complete covering of all fresh concrete for a period of 7 days. Hessian or polythene sheeting shall be in the maximum widths obtainable and shall be secured against wind. The Contractor will not be permitted to use old cement bags, hessian or other material in small piece.

### **Protection of foundation concrete**

Concrete in foundations and other underground work shall be protected from admixture with falling earth curing and after placing.

### **Executive loads before curing**

Traffic or loading shall not be allowed on the concrete except with the written permission of the engineer.



## **FAULTY CONCRETE**

Any concrete which fails to comply with these preambles or which shows signs of setting before it is placed shall be taken out and removed from the site. Where concrete is found to be defective after it was set, the concrete shall be out and replaced in accordance with the Engineer's instructions. On no account shall any faulty, honey combed, or otherwise defective concrete be repaired or matched until the Engineer has made an inspection and issued instructions for the repair. The whole of the cost whatsoever, which may be occasioned by the need to remove faulty concrete shall be borne by the contractor.

## **REINFORCEMENTS**

### **Type of Reinforcement:**

The steel reinforcement shall comply with the latest requirement of the following British Standards:

Round mild, medium tensile and to B.S 765 (Imperial units) high tensile and steel bars.

Hot rolled bars for the reinforcement of concrete	to B.S 1449 (metric units)
---	----------------------------

Cold twisted steel bars	to B.S 1144 (imported units)
Cold worked steel for the reinforcement of concrete	to B.S 4461 (metric units)

Fabric reinforcement	to B.S 1221
----------------------	-------------

It shall be in Imperial or Metric sizes as detailed on the drawings.

### **Testing of Reinforcement**

If required by the Engineer the contractor shall submit a test certificate of the rollings, and/or shall arrange for testing by MOW or other approved authority. Reinforcement shall be free from loose mill scale or rust, grease, paint or other substance likely to reduce the bond between the steel and concrete.

### **Fixing and Reinforcement:**

Reinforcement shall be accurately bent to the shapes and dimensions shown on the Drawings and/or schedule and in accordance with B.S. 1478. Reinforcement must be cut and bent solid and no welded joints will be permitted unless so detailed. Reinforcement shall be accurately placed in position as shown on the drawings and shall be secured against displacement by using No. 18 S.W.C annealed binding wire or suitable clips at inter-sections and laps, and shall be supported by concrete or metal supports, steel chairs, spacers or metal hangers to ensure the correct position and cover before concreting and shall be kept in the same position during concreting. However, such supports, chairs etc. shall have minimum 12mm cover made of concrete blocks where the concrete surface is exposed to weather and/or without finishes.

No laps shall be permitted except the places shown on the drawings without the prior approval of the engineer.

### **Spacing Blocks:**

Spacing blocks of approved size and shape made of concrete similar to that used in the surrounding construction and fixed to the reinforcement or formwork by No. 18 S.W.C wires set into the spacer blocks or other approved means shall be provided where necessary to ensure that the requisite cover is obtained. The contractor is to include for providing sufficient such spacer blocks in his prices for steel reinforcement when such supplier has been nominated.

Where composite blocks or minor forms from construction are just spare block are to be provided. These will generally consist of concrete blocks as described above made to fit the width of the rib less 3 mm of reinforcement bars used per on the top surface with wire ties at each

### **Concrete cover to reinforcement:**

Unless otherwise instructed the concrete cover to rod reinforcement over main bars in any face shall be:

Foundations against each face	3 (75mm)
Foundations against blinding	2 (50mm)
Columns	1½ (38mm)
Beams	1 (25mm)
Slabs	½ (13mm)

### **Positions and correctness of reinforcement:**

No concreting shall be commenced until the engineer has inspected the reinforcement in position and until he has approved the same. The contractor shall give two clear days notice of his intention to concrete.

Irrespective of whether any inspection and/or approval of the fixing of the reinforcement has been carried out as above, it shall be the contractor's sole responsibility to ensure that the reinforcement complies with the details on the drawings or schedule and is fixed exactly in the positions shown therein and, in the positions, to give the prescribed cover.

The contractor will be held entirely responsible for any failing or defect in any portion of the reinforced concrete structure and including any consequent claims, third party claims, etc, where it is shown that the reinforcement has been incorrectly positioned or is incorrect in size or quantity with respect to the detailed Drawings or schedules. Unless permitted by the Engineer, reinforcement shall not be after being embedded in hardened concrete.

### **Protection of exposed reinforcement**

Where reinforcement projects frame concrete setting of the structure and this reinforcement is executed to remain exposed to more than a month it is to be with a cement to prevent rust staining on the finished concrete. This is to be brushed off the reinforcement prior to the continuation to converting.

The Contractor shall be responsible for the co-ordination with the Electrical and other sub-contractors for incorporating electrical conduit, pipes, fixing locks, chases, holes and the like in concrete members as required and must ensure that adequate notice is given to sub-contractors informing them when concrete members incorporating the above are to be poured. The contractor shall submit full details including position of these items to the Engineer for approval before the work is put in hand. All fixing blocks, chases, holes, etc, to be left in the concrete shall be accurately set out and cast with the concrete.

## **FORMWORK**

### **Materials and Design**

Formwork shall be constructed of timber or steel or precast concrete or other approved material with sufficient strength to withstand pressure resulting from placing and vibration of the concrete and with rigidity to achieve the specified tolerances.

The design and Engineering of the formwork as well as its construction shall be the responsibility of the contractor. The Formwork shall be designed for the loads, lateral pressure, pressure due to cyclonic winds and other loads likely to be encountered on site.

Shops drawings for formwork including the location and reshoring shall be submitted for approval by the Engineer before erection.

### **Construction**

All formwork shall have joints close enough to prevent leakage of liquid from the concrete and formwork shall be jacked or dugged and clamped or bolted to permit adjustments before concreting and to permit easing and removal of formwork without jarring the concrete. Formwork shall be securely braced and strutted against lateral deflections and vertical movements. Where formwork is supported on previously constructed portions of the reinforced concrete structural frame, the Contractor shall by consultation with the Engineer ensure that the supporting concrete structure is capable of carrying the load and/or is sufficiently propped from lower floors or portions of the frame to permit the load to be temporarily carried during construction.

Formwork shall be cambered to compensate for anticipated deflections prior to hardening of the concrete.

### **Preparation for Concreting**

The Contractor's attention is drawn to the various surfaces textures and applied finishes required and the faces of the formwork next to the concrete must be of such material and construction and be sufficiently true to provide a concrete surface which will in each particular case permit the specified surface treatment or applied finish.

At construction points contact surface of the form squeating for flush surfaces shall overlap 300mm and shall held right against the hardened concrete to prevent effects or loss of mortar.

Methods of fixing and positioning of the formwork which results in holes through the concrete and/or left in metal ties or similar in the concrete shall require Engineer's approval.

All surfaces which will be in contact with concrete shall be piled or greased to prevent adhesion of mortar. Oil or grease shall be of a non-staining mineral type applied as a thin film before the reinforcement is placed. Surplus moisture shall be removed from the forms prior to placing of the concrete.

Temporary openings shall be provided at the base of columns, wall and seam forms and at any other points where necessary to facilitate cleaning, and inspection immediately before the pouring of concrete. Before the concrete is placed the shuttering shall be trued-up, and the interior of the form shall be completely cleared of all extraneous materials including accumulated water.

The reinforcement shall then be inspected for accuracy of fixing, immediately before placing the concrete the formwork shall be well wetted and inspection openings shall be closed.

### **Defective Formwork:**

Defective formwork shall be removed or strengthened and improved by the contractor according to the instructions by the Engineer.

### **Formwork to Construction Joints etc.**

Formwork forming the construction joints and expansion joint shall be rigid, tight to avoid loss of mortar and true in square.

Formwork shall be inspected and passed by the Engineer before placing reinforcement and concreting.

### **Stripping Formwork:**

Formwork shall be removed without undue vibration or shock and without damage to the concrete. No formwork shall be removed without the prior consent of the Engineer and the minimum periods that shall elapse between the placing of the concrete and the striking of the formwork will be as follows:

Beam side walls and columns (unloaded)	2 days
Slab soffits (with props designed to left under)	7 days
Beam soffits (with props designed to left under)	10 days

Subject to work cubes achieving the specified strengths and the loads due to construction on them being lighter than the designed loads. The props can be removed for:

Slab	.....	10 days
Beams	.....	21 days

If the Contractor wishes to take advantage of the shorter stripping times as permitted above for beam and slab soffits when props are left in place, he must so design his formwork that sufficient props as agreed with the Engineer can remain in their original position without being moved in any way until expiry of the minimum time for removal of props. Stripping and re-propping will not be permitted.

Contractor shall be responsible for consequent damage arising from early stripping of formwork.

### **Making good:**

After removal of formwork all projections, etc, on the concrete surface shall be chipped off, and made good to the requirements of the Engineer. Any voids or honeycombing shall be treated as described in "faulty concrete".

### **Fair-face etc.**

Where fair-face is specified the contractor shall make a sample of area formed by sides not less than 1.2m for approval by the Engineer and the Architect. Same will apply to Board Marked. Tamped and finishes.

### **Related Uniformed Surfaces**

Top of walls or buttresses, horizontal offsets and similar uniformed surfaces occurring immediately adjacent to formed surfaced shall be struck smooth after the concrete is placed and shall be floated to a texture reasonably insistent with that of the formed surfaces.

### **CONCRETE BLOCKLAYER**

Concrete blocks Concrete blocks for walling shall comply with B.S 2028 Type A (for load bearing walls) and of compressive strength not less than:

Average of 12 blocks ..... 500 lbs/sq. in. Gross area  
Lowest individual block ..... 375 lbs/sq. in. Gross area  
Blocks for non-load-bearing walls are to be class B blocks.

Blocks shall be hollow two-hole type and shall be cured for not less than 28 days before they are used in the works. The Contractor shall supply a certificate from the supplier for each consignment of block received to the effect that the blocks meet the requirements and strength of the latest relevant B.S. Any block for which a certificate cannot be produced will be condemned and must be remove from site. All blocks supplied shall be of the same height and blocks of dissimilar dimensions will not be accepted. Half-length blocks and specials shall also be provided as specified or required to break bond.

### Mortar

Mortar to be used for all Type A blockwall shall be composed of 1 part of cement to 3 parts of sand. Mortar for Type B blockwork shall be composed of one part of Portland cement, one part lime, and five parts of sand. All mortar shall be measured in specially prepared gauge boxes and thoroughly mixed dry or clean and water tight mixing platforms, with water added from a fine rose until all parts are completely incorporated and brought to a proper consistency.

All mortar must be used within thirty minutes of mixing.

No partially or wholly set mortar will be allowed to be used or re-mixed.

### Setting and jointing

All blocks shall be lightly wetted immediately before being bedded and jointed to minimise absorption of water from the mortar.

Blocks are to be well buttered with mortar as previously specified. The blocks shall be laid fair-faces on the outside face, in stretcher bond with 10mm. thick, full, flushed up and grouted solid joints. The joints shall not vary by more than 3mm and four consecutive joints shall not exceed 38mm and four consecutive joints shall not exceed 38mm. Joints shall be raked out where surfaces of walling are to be plastered.

### Laying of blocks

All walls throughout the work shall be carried up evenly in courses, no part being allowed to be carried up more than 900 mm. higher at one time than any other part and in such cases the joining shall be made in long steps so as to prevent cracks arising and all walls shall be levelled around at each floor. All put-log holes shall be carefully, properly and completely filled up on completion of walling work.

All walling shall be properly protected while mortar is setting.

Walls shall be kept thoroughly wet for at least three days or for such longer period of time as the Architect may direct.

Wall exposed to the sun shall be protected with a sacking which shall be kept wet.

### Fair Face Blocks

Where walling is to be finished fairfaced, the blocks are to be selected free from defects. Joints shall be raked out as works proceed and pointed with a neat flush joint.

The work shall be carried out regularly with all horizontal joints truly horizontal and no part shall be more than 900mm above adjacent work during construction.

### Sample Panel

The Contractor shall include in his tender for erecting a sample panel on site of 200mm blockwork, not less than 1 square metre in area and built off a suitable concrete foundation. The sample, when approved, to form the standard for all concrete blockwork in the contract. The sample area and concrete foundation to be removed when ordered and the surface of the ground made good. Horizontal and vertical joints shall be 10mm finished thickness, and raked out 12mm deep where face of wall is to be rendered and in other cases to be left finished flush or as otherwise instructed. The joint grooves between blocks shall be completely filled with cement, lime mortar. No portion of the wall during construction to be more than 900mm above adjoining work. All work to be executed truly level, perpendicular and properly bonded together without continuous upright joints.

<u>Cement, sand and lime</u>	Cement and aggregates for this trade except where separately specified for precast concrete blocks shall be as specified for “Concretor” and lime shall be dry hydrated lime to B.S 890 Class B.
<u>Air bricks</u>	Form and leave neat holes in walls and supply and build in approved louvred pattern concrete air bricks where shown. The opening shall be rendered on all sides, the bottom sloped towards external face.
<u>Bedding and pointing</u>	Bedding and pointing of timber door and window frames shall be in cement mortar. Where frames are in metal, they shall be bedded and pointed in mastic. Lugs or ties shall be built into walls as described.
<u>Fixing blocks and</u>	Provide and build into walls all necessary fixing blocks and <u>leaving holes</u> leave out or cut away as necessary holes for pipes, conduits and the like and make good after fixing by other trades and specialists.
<u>Build in lugs</u>	Form or leave mortices in walls for, and build in lugs and <u>the like</u> all necessary fixing for metal windows and doors, door frames and lining, sanitary fittings, rainwater pipes, clips and bearer of various types.  When building up the walls, the openings shall be made about 200mm wider than the external dimensions of the door's frames, and when the latter are placed, complete with lugs, the walling completed in concrete mix type C.
<u>Damp-proof course</u>	Where indicated on drawings provide 2-ply felt damp-proof course. Felt to be of a manufacture approved by the Architect and to be laid on a 25mm thick bed of cement mortar (1:3 mix) on walls.  The damp-proof courses to stand the full thickness of walls, partitions and beams in one width and to be overlapped 6” at all jointings and corners.
<u>Measurements</u>	The Contractor must allow in his prices for block walling for plumbing angles, all straight and raking cuttings, cutting under soffits, waste, split courses necessary for bond, bonding at angles, intersections and junctions of walling of different thicknesses, cutting and fitting to columns, cutting and pinning to beam, cutting and fitting around end of cills and lintels, cutting and pinning ends of structural timber.  The rates of blockwork must also include for fixing all door, window and like openings, forming reveals to same and for cutting and waste to walling in short lengths to mullions and jamb of openings.  The rates of blockwork must also include for hoisting and building off beams and slab at any level, all necessary scaffolding and for work built overhead.

### **Engineer Specification for reinstatement of sub base for synthetic track.**

At locations where tarmac have experienced settlement and at locations where unwanted plants and/or grasses are protruding, it is necessary that the structure of the proposed synthetic track are identified and remedial works done.

The remedial works will include cutting squarely the area affected and removal of the damage tarmac layer, asphaltic concrete layer and crusher run layer. The sub-grade is to be compacted properly and treated with necessary herbicides. The crusher run and asphaltic layer is to be compacted properly to existing thickness before taking the new synthetic layer.



The crusher run layer is to be sprayed with prime coat and tack coat before laying of the asphaltic concrete layer. The tack coat is also to be sprayed across vertical cut surfaces of adjacent asphaltic concrete layer for proper bonding between the two surfaces.

## **POLYURETHANE RESILIENT TRACKS**

### **PART 1 GENERAL**

#### **1.1 DESCRIPTION**

Supply and install-in-situ poured polyurethane latex resilient tract surface specially formulated for highest of competition at any venue. The system shall consist of a force reduction layer comprising of very fine EPDM particles mixed with a two-component flow applied polyurethane binder providing adequate shock absorption for elite competition & training and a top wear layer combining EPDM granules within the polyurethane to create outstanding rebound properties in a fast, resilient and durable surface. The success of the track system is dependent on proper drainage, sound asphalt and a resilient surface adequate in stability and strength.

#### **1.2 RELATED SECTIONS**

- A. Related work
  - Drainage to design and to IAAF standards
  - Asphalt Pavement to design and to IAAF standards
  - Athletic Equipment to design and to IAAF standards.

#### **1.3 QUALITY ASSURANCE**

- A Asphalt surface shall comply with the guidelines of the IAAF for surface planarity and density.
- B All liquid materials shall be from a single source and manufactured for the purpose of resilient track construction.
- C The contractor shall record the batch number of each product used on the site and maintain it throughout the warranty period.
- D The contractor shall provide the owner, an estimate of the volume of each liquid product and the weight of the rubber granule to be used on site.
- E The installer shall be an Approved Applicator of the specified surface system.
- F The manufacturer's representative will be available to help resolve material issues.

#### **1.4 SUBMITTALS**

- A Manufacturer's specifications for components and system.
- B Current material safety data sheets (MSDS) for the liquid components.
- C Authorized Applicator certificate from the surface system manufacturer.
- D A certificate from the manufacturer of the binders and coatings stating that the materials have been produced specifically for the use in sports surfacing construction.
- E A complete list of materials intended to be used in the construction of the running track system. All liquid quantities will be prior to dilution.
- F Reference list from the installer of at least 5 projects of similar scope done in the past three years.

- G Product substitution: If other than the materials specified, the contractor shall submit a complete type written list of proposed substitutions with sufficient data, drawings, samples and literature to demonstrate that the proposed substitution is of equal quality and utility to that originally specified. Information must include a QUV test of at least 5,000 hours and shall be subject to approval and or rejection.

## 1.5 MATERIAL HANDLING AND STORAGE

- A Store material in accordance with manufacturer's specifications and MSDS.
- B Deliver products to the site in original, unopened containers with labels attached.
- C All surfacing materials shall be non-flammable.

## 1.6 GUARANTEE

The installer and the materials manufacturer shall supply a warranty covering labor and materials respectively. The warranty period shall be for 10 years. Warranty does not include integrity of previously installed products.

## 1.7 INSTALLER QUALIFICATIONS

- A Installers shall be regularly engaged in the construction and surfacing of running tracks.
- B Installer shall be an authorized applicator of resilient running tracks.
- C Installer to be a builder member of approved bodies is desirable.

## 1.8 MANUFACTURER QUALIFICATION

- A Material supplier shall certify that the materials provided are manufactured specifically construction and surfacing of running tracks.
- B System manufacturer shall be a company that has been continuously engaged in the business of track surfacing materials for at least 10 years.
- C Manufacturer shall be approved by the IAAF or other approved.
- D System manufacturer shall have a designated representative available for site inspection for completed work.

## PART 2 PRODUCT

### 2.1

- A Manufacturer – Approved by IAAF
- B Product substitution: If other than the materials specified, the contractor shall submit at least 7 days prior to the bid date a complete type written list of proposed substitutions with sufficient data, drawings, samples and literature to demonstrate that the proposed substitution is of equal quality and utility to that originally specified. Information must include a QUV test of at least 5,000 hours.
- C Any materials used must be an emulsion/water based product. Any products which require solvents such as MEK, Butyl Cellusolve or Aceton for clean up or mixing are not acceptable.
- D Materials must have a VOC less than 150g/lit. for binder products. Top coats shall have a VOC of less than 100g/lit.

### 2.2 MATERIALS

- Binder: Shall be. 100% Acrylic resin blended with Portland Cement and Silica Sand
- 1) Percent solids by weight (minimum) 46%
  - 2) Weight 1.04 kg/lit



Primer: Latex emulsion Primer. SBR emulsion

- 1) Percent solids by weight (minimum) 50%
- 2) Weight 1.0 kg/lt

Tensile strength – 180 PSI and elongation – 1440%

Shock  
Absorber  
Flow  
Applied:-

Shall be two component very fine EPDM particles and polyurethane binder:

Red / Other Colors

- 1) Percent solids by weight (minimum) 47-49%
- 2) Weight 1.2 kg/lt

Black

- 1) Percent solids by weight (minimum) 47-49%
  - 2) Weight 1.1 kg/lt
- Tensile strength -990 PSI and elongation -730%

Wearing coat - Shall be a wear layer of two component polyurethane and embedded EDPM granules:

Red

- 1) Percent solids by weight (minimum) 49-51%
  - 2) Weight 1.2 kg/lt
- Tensile strength -450 PSI and elongation -650%

Line Paint- Shall be:

100% Acrylic Resin containing no alkyds or vinyl copolymer constituents

- 1) Percent solids by weight (minimum) 53.1%
- 2) Weight 1.4 kg/lt

Water- The water to be used in the mixture must be fresh and potable

The installer will provide to the Owner/Architect a proforma materials list prior to the installation of the volume of materials to be used on the project. The proforma will include the following:

- a) Surface area to receive the coating. ----- sq. m
- b) Gallons of primer (undiluted) 0.15 l/m<sup>2</sup>
- c) Gallons of polyurethane surface (undiluted) 0.3 l/m<sup>2</sup> (minimum)

The installer will furnish the Owner/Architect with a proof of delivery that the correct volume of product has been provided. The installer will also verify that the same manufacturer has supplied all binders and coatings.

## PART 3 EXECUTIONS

### 3.1 WEATHER LIMITATIONS

- A Ambient and surface temperatures must be 20°C and rising.
- B Installation should not be conducted during rainfall or when rainfall is imminent.
- C Do not apply when surface temperature is in excess of 30°C.

### 3.2 SURFACE PREPARATION

- A Surface must be thoroughly cleaned of all loose dirt and debris.
- B Prior to the application of the new wearing surfaces, the contractor shall coordinate with Owner/designer areas in need of making good. Areas to be addressed shall include pavement cracks, leaves and depressions, drainage, curbing etc. as required.

### 3.3 RESILIENT SURFACE INSTALLATION

- A Apply binder at a rate recommended by the supplier.
- B After the surface has been properly prepared the surface shall be primed/tack coated with primer at the rate of 0.15 l/m<sup>2</sup> with an approved spray unit. Do not allow material to puddle on the surface.
- C Apply Polyurethane shock absorber to the tack coated surface. May be applied in successive coats to the approved design thickness (Minimum thickness 12 mm). Do not allow material to puddle.
- D Apply wearing coat.
- E Each application shall be thoroughly dry before a successive layer is applied.

### 3.4 MARKING AND MEASUREMENTS

Wait 48 hours after surface completion before applying line marking. The installer shall:

- a) Locate and establish all radius points.
- b) Establish and set all necessary control points.
- c) Layout all lines and markings to tolerances set forth by the governing body requirements.
- d) Prepare all necessary drawings
- e) Provide all computations and measurements in organized form.
- f) Establish all locations on the curves using a Transit or Theodolite capable of reading direct to 20 seconds.
- g) Identify all markings, where appropriate, by painting the identification directly onto the track surface in 100mm letters just below or in front of each mark in the right hand portion of the lane.
- h) Paint all of the large, 75mm high, lane numbers in two (2) colors, utilizing shadowed backgrounds.
- i) All lines shall receive sufficient paint to assure complete opacity and uniformity of color.
- j) Paints shall be used directly from original containers and shall be thinned only when hot temperatures dictate thinning for smooth applications.
- k) Amount of paint used shall be as recommended by the manufacturer.
- l) The paint used shall be a 100% acrylic latex line paint, Line paint, made especially for the painting of lines on sports surfaces
- m) All measurements shall be made by competent, experienced and fully qualified personnel.
- n) Upon completion of the track markings, a registered land surveyor or engineer shall furnish an acceptable letter of or certificate of, accuracy to the Owner attesting to the accuracy of the track markings and measurements. This will also include copies of the computations, calculations and drawings that were used to obtain this accuracy. The Engineer or Surveyor should affix their stamp to the drawing and the certificate.
- o) The markings shall include all events and marks required or recommended by the I.A.A.F dependent on the end use of the facility.

### 3.5 PROTECTION

- A During construction the owner is responsible for limiting access of non- construction personnel to the site.

B The owner shall coordinate any irrigation of fields with the installation contractor.

C The installer shall protect curbs, fences and other structures from overspray.

### 3.6 **CLEAN UP**

A Remove all containers, surplus and debris and dispose of in accordance with local regulations.

B Remove all spills and overruns.

C Leave site in a clean and orderly condition

## **General Notes**

1. The risk of falls should be prevented by observing safe work practices when working close to the edges and strict supervision should be ensured.
2. The fragility of the roof material should be ascertained prior to start of the operations and fragile roof should be identified with a warning sign.
3. Persons undertaking the works should have appropriate training.
4. Unauthorized access should be prevented by blocking off access routes and access equipment.
5. The use of permit to work system should be considered.
6. More care and precaution is needed in case of adverse weather conditions such as windy conditions.
7. Persons working on roof should be physically fit and provided with Personal Protective Equipment such as non-slip shoes, hard hats, tool belt and respiratory protection should be provided.
8. Minimize the need for manual handling and provide the workers with information on weights of material.
9. Segregation of the work area as well as appropriate signage should be used to prevent contact with access equipment.

## **ELECTRICAL WORKS REQUIREMENTS**

### **1.0 Note to Bidders**

#### **2.1 Manner of Execution**

The contractor shall supply, install, test and commission the equipment and Electrical Works in the manner set out in the non-exhaustive specifications or where not set out, to the satisfaction of the Project Coordinator (Electrical) and all reasonable variations on site shall be carried out in accordance with such directives as the Electrical Engineer may give.

It is understood that the project shall be completed for the fixed sum awarded inclusive of any item which might not be mentioned in the specifications, schedules, drawings but deemed necessary for the completion of the project and proper functioning of the system/equipment.

#### **2.2 Schedule of Materials**

Materials for this project should be as per specifications/schedules. All materials and equipment shall be new and of the best quality. The Contractor shall have to submit samples of the electrical accessories proposed to be used on the project or relevant documentation at no extra costs for approval or otherwise to the Engineer or his representative prior to ordering the lot and installation.

Full catalogue or where applicable leaflet containing technical data as proof of compliance with the specifications shall be attached and submitted with the offer to enable ease of evaluation. Omission to provide technical data will entail elimination from consideration.

#### **2.3 Schedule of Works**

The bidder shall submit a detailed programme of works for Electrical Works inclusive of shipment dates and delivery on site. The bidder shall indicate the time period for the execution and completion of the installations and for the whole project.

#### **2.4. Site Exigencies**

The selected bidder shall respect security arrangements in force at the site and shall seek necessary permission and security pass for yard access if any for execution of the work. The contractor shall carry out works outside normal office hours where deemed necessary and authorised by Project Coordinator (Electrical) without any increase in contract cost. Claims for overtime works shall not be entertained. The site shall be kept tidy and no materials/refuse shall be kept which may cause obstructions.

The contractor shall mention the site of storage if the equipment are not stored at the official site. The contractor shall provide all site amenities, testing equipment and tools inclusive of articulating booms/lifts for verification/testing purposes for the Project Coordinator (Electrical).

### **3.0 Conditions of Contract**

#### **3.1 Site Visit**

Bidders are advised to visit the site before submission of bid so as to be fully acquainted with the nature of the site and extent of work involved. Bidders shall contact the Ministry for site visit arrangement.

#### **3.2 Bill of Quantities, Drawings & Compliance Sheet**

The bidders shall fill in the Bill of Quantities (BOQ) and Compliance sheet and submit same together with the bid documents.

The BOQ and **Compliance sheet** have been prepared with a view to provide a common basis for bidding. Before submission of bid, it is deemed that the bidder has acquainted himself with all conditions prevailing on site. All the specifications, PAS, drawings are complementary and should be read accordingly. The bidders are advised to carry out measurement and check the quantities of materials. In case of discrepancies, omissions or errors, the bidder shall inform the Client prior to submission of the bid. No extra claim shall be entertained afterwards on this issue.

The Bidders shall fill in the compliance sheets for the major equipment and submit same together with the bid documents. Equipment/materials for this project shall be as per specifications/schedules or as indicated on the drawings. Before supplying materials for the project, the proposed materials shall be vetted by the Project Coordinator (Electrical).

### **3.3 Liaison with CEB/Client Ministry**

The contractor shall liaise with the representatives of the CEB and Client Ministry/ESD for connection /disconnection facilities or switching of the main supply etc. for the electrical installations. All structural/civil works icw with sheds/cubicles for switchgears, earthing, etc. shall be included in the contract.

### **3.4 Civil/Structural Works**

All structural/civil works icw with LV pillars, sheds/cubicles switchgears, earthing, etc. shall be included in the contract. All structural/civil works to be approved by the Project Coordinator (Civil).

### **3.5 Guarantee Period**

The Electrical installations shall be guaranteed against manufacturing defects, bad workmanship and other defects not related to normal wear and tear for a period of one (1) year or as mentioned from date of successful commissioning in presence of Project Coordinator (Electrical).

In the event of a defect, the Contractor shall at his own expense, within 48 hours, make good such defects as instructed to the satisfaction of the Project Coordinator (Electrical).

Retention money will normally be released at the end of the one-year guarantee period, subject to maintenance being carried out satisfactorily during that period.

### **3.6. Provisional Sum/Contingencies**

Provisional sum/contingencies included in the contract price shall be expended or used as the Project Manager may in writing direct and not otherwise. In so far as the sum included in the contract price is not expended or used, it shall be deducted from the contract price.

### **3.7 Removal of existing Electrical installations**

The Electrical installations and all electrical accessories shall be dismantled and removed. Prior to removal the client will provide all lists of items that need to be handed-over and other items shall be carted away.

All items in working condition that should be handover to client shall be removed with care without them being damaged in the process

### **3.8 Continuity of Electrical supply**

The contractor shall liaise with the Client Ministry to ensure a smooth running and minimum disruption of activities before submitting the detailed programme of works. The contractor shall ensure the continuity of electrical supply to the playground. Temporary electrical installation/supply shall be provided as and when needed. All electrical items required shall be supplied.

### 3.9 **Maintenance work**

It is required to carry out servicing and maintenance work to the electrical items and electrical installation as mentioned below. The servicing shall be carried out as mentioned in this document or as per manufacturer recommendation:

- Electrical Installation, Electrical panels and electrical items.
- Air-Conditioning system.
- Fire alarm system.
- Lighting System

### 4.0 **Electrical Installations**

This section provides a brief description of the electrical works related to this contract. The selected Electrical Contractor shall carry out the works to the full satisfaction of the Project Coordinator (Electrical).

#### 4.1 **Regulations**

The installations shall conform in all respects to the latest edition of Institution of Electrical Engineers (IEE-U.K.), Wiring Regulations (BS 7671) with any subsequent amendments.

#### 4.2 **Electrical Supply**

The new installations shall be furnished with a 400V/230V, 50Hz power supply derived from a CEB source.

#### 4.3 **Distribution Boards (DBs) - Electrical Panels Main Distribution Boards, Sub-main Distribution Boards, Sub Distribution Board, Sub Distribution Boards**

The **DB** shall be to IP 659, IK 10 and shall be vandal proof made of galvanised steel with textured polyester resin finish, self-extinguishing type, reversible hinged lockable door and removable rear panel. It shall have having the wordings "DANGER ELECTRICITY" neatly & prominently painted. The outdoor DB shall have breaking capacity  $\geq$  Bus bars. It shall have adequate natural or fan assisted ventilation. It shall be mounted & enclosed in concrete acceptable to the Project Manager.

The panels shall be integrated with rails/perforated plates and shall be big enough to accommodate incoming and outgoing feeders and the following:

1. MCCBs/MCBs and RCDs/RCBOs as per schematic layouts.
2. Bus bars/Distribution blocks of specified ratings with supports and spare connectors.
3. Copper Earth Bar Terminal with suitable number of outlets & sizes.
4. Meters, Selector/Timer switches, Contactors, Indicators etc.
5. All accessories (Terminals, Distribution Blocks, Face Plates etc.) to make a complete panel.

Distribution boards shall be wall mounted or floor standing type as specified. All circuits and instruments in the board shall be properly labelled with Perspex and danger notices fixed on panels. Plasticised schematic layout shall be fixed in respective Distribution Boards.

Panels shall be located as shown in drawings and shall be solidly & properly earthed.

#### 4.4 **Busbars and Distribution Blocks**

**Compact rigid copper busbar** to BS 5486 of specified ratings at least 440V, 3 phase TPN c/w Earth bar. The busbars shall be enclosed in a metal DB to IP 659, IK 10 as specified above.

The busbars shall be able to sustain faults currents of at least 25 kA.

The system shall include the following:

- i. Junction/feeder boxes for connection to cables
- ii. Accessories such as Tees, bends, etc.
- iii. Transparent protective front cover
- iv. Galvanised supports and fixing brackets.

The busbar shall be marked prominently at the outside with the wording “**DANGER**”.

**Distribution Blocks** shall be self-extinguishing type to EN 60695-2-11. They shall be rail mounted and supplied with insulated black plate and transparent protective front cover. They shall be 2P or 4P as specified with minimum Isc 16/25 kA.

#### **4.5 Labels and Danger Notices**

Identification labels of laminated plastic materials (perspex) engraved, black on white with no less than 6mm ‘Limo’ style letters shall be fixed on or adjacent to all distribution gears with at least 2 brass screws.

Suitable warning notices in red lettering on white background shall be provided on each distribution boards. Label shall bear identifications on drawings and voltage also.

Suitable “Danger” plates shall be securely affixed on the distribution boards and mounted in prominent position. Each danger notice shall be fabricated in enamel sheet steel. Symbols shall be in red on white background and shall be to British Standards.

All cables ending in electrical panel shall be properly labelled as per a cable schedule.

#### **4.6 Switchgears**

**# Moulded Case Circuit Breaker MCCBs** shall comply with BS 4752, shall be 4 poles of minimum breaking capacity 25 kA at 440 Volts, shall have adjustable nominal (I<sub>o</sub>), thermal (I<sub>r</sub>~0.7-1 I<sub>n</sub>) and magnetic releases (I<sub>m</sub>~3.5-10 I<sub>n</sub>). It shall be supplied with all necessary accessories such as adaptor for fitting, auxiliary contacts, alarm contacts, shunt trip, under voltage releases and all mounting accessories such as terminals, spreaders and insulation seals etc. It shall incorporate the following:

- i. Positive opening indication
- ii. Test button for mechanical release control
- iii. Rotary retractable door mounted handle on the front of the unit of the Main MCCBs

**# Miniature Circuit Breakers (MCB)** shall be to BS EN 60898 and shall be 2/4 poles as specified or as per schematic layouts. The minimum breaking capacity of the MCBs shall be 6/10 kA and shall have type B/C/D tripping characteristics as specified.

**# RCBs or Residual Current Device (RCD)** to IEC 61008-1 **Type A, 2P/4P** of sensitivity 30-300 mA with minimum breaking capacity 6/10 kA associated with MCBs shall be used where specified. These shall provide protection against earth leakages and short circuit/overload. **Type Hpi shall be used for computer and sensitive equipment.**  
**RCCBs** shall not be accepted.

#### **# Power Contactor**

The contactor shall conform to IEC 61095 and shall have the following characteristics:

- Power: 25-40 Amp, 400 V/50 Hz supply or as specified
- Voltage relay coils – 230 V/50 Hz or as specified
- At least 2 N/O & 2 N/C contacts
- Self-cleaning contacts
- Easy frontal/lateral clipping of auxiliaries
- Mechanical life: around 10<sup>6</sup> cycles



These shall be used as directed.

### **# Selector Timer Switch**

The selector timer switch shall conform to IEC 61095 and shall have the following characteristics

- 230 V/50 Hz supply
- Programmable time switch
- Change Over Switch with manual override
- Ample Working Reserve
- Analogue Dial

These shall be used for external lighting or as directed

### **# PIR Motion Detector**

The PIR Motion/Presence Detector shall have the following specifications:

- AC supply 230V/50Hz
- Light level adjustment: 5-1000 lux
- Delay Timer: Pulse 5-300s
- Flexible detection range mounting
- Reset button incorporated
- Manufactured to BS

The PIR Motion/Presence Detector shall be used for toilets (lights+extract fans) or as directed.

### **4.7a Switches and Sockets**

The lighting switches shall be to BS 3676 recessed metal clad vandal proof and IP 65 outdoor-weather proof type complete with very flat base plate, rated as specified. The number of gangs and ways shall be as indicated in the drawings. The lighting switches shall be flush mounted and fixed at around 1500mm above the finished floor level.

All sockets shall be to BS 1363 switched recessed metal clad vandal proof and IP 65 outdoor-weather proof type with shuttered openings and shall be provided with neon indicators. The number of gangs shall be as indicated in the drawings. The sockets shall be flush mounted and fixed at around 300mm from the finished floor level, or as specified.

### **4.7b Combined Lightning Current and Surge Arrestor**

Voltage Rating/Frequency	200 - 240 or 380-440 V <sub>rms</sub> /47-63 Hz
Nominal Discharge Current/ph	25 kA 8/20 $\mu$ s one time
Max Surge Discharge Current/ph	50kA for 240V and 100kA for 440V 10/350 $\mu$ s one time
Follow Current Extinguishing capability/ph	50 kA <sub>rms</sub>
Response Time	<100 ns
Leakage Current	<250 $\mu$ A (Ph/E)
Let through Voltage at	700 V Ph/N 3 kA 8/20 $\mu$ s one time 700 V Ph/E
Protection level	5.0 kV at In
Indication for operation/fault	LED green/red
Suitable for Neutral point connections	EE-EN-IE
Standard	Type1 IEC 61643-1

It shall be enclosed within a modular design to IP 55

Associated MCB/RCD shall be included for complete installation

**It shall be backed by a five (5) year guarantee**



## 4.8 Type of Installation and Cables

The cables shall be routed mostly in fire-retardant PVC trunkings, concealed conduits, cable trays, ducts, PVC underground pipes, galvanized conduits, manholes or as specified. The cables shall be neatly grouped without any crossing and shall be properly clipped at recommended interval of 1 metre and at bends according to recommended cable space factor requirements. All cabling shall be complete with end terminations, cable glands, lugs, etc. Bending radii of cables shall conform to BS.

Cables shall comply with BS 6500 and IEC 60502. Cables shall be of 1 KV grading conductors of high conductivity copper wires. The cabling between the Main Distribution Panel/Board and various distribution boards shall be of copper conductor XLPE/SWA/PVC insulated and of specified sizes as per schematic drawings. Sufficient Inspection boxes to the nearest minimum requirements shall be provided to permit periodical inspection and to facilitate replacement of wires if necessary. The inspection/junction boxes shall be mounted flush with the wall or ceiling concrete. Ventilating holes shall be provided in the installation where required.

Colour code of cable shall be as follows:

First phase	Brown
Second phase	Black
Third phase	Grey
Neutral	Blue
Earthing	Yellow-Green

The contractor shall submit shop drawings for indicating the cable routes, type of installation including dimensions for the cables and associated details to Project Coordinator (Electrical) for approval.

## 4.9 Wiring & Conduit for Final Circuits

Wiring for final circuits shall, unless otherwise specified, be carried out in non-armoured 1kV grade single-core PVC-insulated cables manufactured in accordance with BS 6004. Cables shall be stranded copper conductor and self-coloured insulation to BS EN 50525.

All cables shall be within fire-retardant trunkings/concealed heavy duty orange conduits/galvanized perforated steel cable trays as approved by the Project Coordinator (Electrical). Within the trunking/conduits/cable trays, circuits shall be bunched at reasonable intervals and shall be properly labelled. They shall be supplied with cable straps at 2000mm intervals. Inspection boxes shall be provided to permit periodic inspections and maintenance works.

Flexible fire-retardant trunkings/ heavy duty conduits/cable trays of adequate dimension shall be used in order to satisfy cable space factor. Separate twin trunkings/conduits shall be used in offices for power and data cables.

Manufacturer's standard fittings (e.g bends, tees, end plates) shall be used throughout.

## 4.10 Underground Cables

The **armoured** underground cables shall be routed through yellow/orange high pressure PVC pipes in trenches as per drawings. They shall run in continuous lengths; no cable joint shall be permitted. The stipulated space factor shall be observed for the pipes.

The contractor shall make all necessary allowance in his quotation for Warning tapes and any trenching work which shall include excavation, backfilling as well as erection of electrical manholes. Shop drawings to be submitted after award of contract.

#### 4.11 Manholes

Manholes (Electrical Drawpits) shall be built with reinforced concrete according to drawing. Openings of sufficient size shall be made on the sides for entry of PVC pipes. The manholes shall have waterproof galvanised metal covers on top of which shall be marked "DANGER ELECTRICITY". All opening shall be properly sealed to prevent ingress of water, dust and rodents. The layout of the manhole is attached in the Appendix.

### 5.0 Earthing System

The Earthing system shall be to BS 7430. For the earthing of the **MDB**, there shall be a combination of copper plate of minimum size 600mm x 600mm x 3mm installed at a depth of at least 2 metres below ground level and 4 copper rods of minimum diameter 25mm and 2 metres long and spaced at twice their length apart as earth electrodes.

The earthing of the MDB shall form a connected array of earth plate and rods driven into the ground, linked and bonded together by the BS recommended swa copper conductors to form an equipotential ground plane.

The Earth Resistance shall be less than 5 ohm.

The above number of earth rods shall be increased until the acceptable earth resistance is achieved. Electrically conductive Ground Enhancing Materials may be used to achieve low ground resistance in accordance with the manufacturer's instructions.

Concrete inspection pits c/w galvanised removable covers marked 'EARTH' shall be erected for main earthing to enable inspection and testing as per drawing.

### 6.0 LIGHTING AND LUMINAIRES

#### Lighting Installations

All luminaires shall comply with BS 4533 and manufactured to European Standards.

All light fittings shall be installed c/w lamp/tube, LEDs, driver, electronic starter, control gears choke and pf compensating ballast.

All luminaires shall be carefully stored before erection and handed over in new conditions.

#### **Energy Saving LED Fittings**

The LED tubes shall have the following specifications:

- Power rating: 230V, 50Hz
- Efficacy: > 100 lm/W
- Beam angle: min. 210°
- Colour Temperature: >4000K industrial white
- Colour rendering: Ra>80
- Life span: around 25,000 hours
- Certification: IEC 62776
- Proof of certification shall be submitted with quotation

## **TYPE A**

### **Flat Led Rectangular Panel Light Fitting - 1300x250mm (TYPE A) – (Main Building and Store)**

- Body: Flat slim design ceiling grid module size around 1300mm x 250mm
- Light source: LED modules
- Luminous flux : 5500 – 6000lm,
- Electrical Supply: 230 V, 50 Hz
- Integral power supply and driver
- Efficacy: at least 100 lm/W
- Beam angle: around 90-100°
- Color Temperature: >4000K
- Type: recessed for false ceiling and surface mounted in concrete ceiling.
- Material Housing:
  - Back cover: treated steel
  - Frame, light guide and diffuser: polycarbonate/polystyrene
  - Optic cover: micro-lens made of acrylic
- Lifetime: 30,000 hours
- Manufactured to European Standards

## **TYPE B**

### **Weatherproof Bulkhead (Toilet)**

The ceiling mounted luminaire shall be circular/oval and shall have the following features:

- Body: Die cast Aluminium and tempered glass
- Integral power supply and driver
- White LEDs in wide beam optics configuration
- Fitted with: **12-15 W, 230V LEDs**
- Insulation Class I/II to IP 55
- Manufactured to European Standards

## **TYPE C (Covered Link, periphery of building and Shed)**

### **Weatherproof Rectangular Light Fitting Type C - 1300x100mm**

Weatherproof type SMD LED luminaire shall be dust proof and water resistant to at least IP 55, impact resistant at least IK07 with white UV stable glass reinforced polyester housing material.

The light fitting shall comply with the following:

- Linear type at least 1m length
- Mains voltage/ Mains frequency: 230 V +/- 6 %V, 50 Hz
- Type: Built-in LED Driver with LED linear module
- Mounting: Wall/ceiling mounted using fastening brackets
- Initial LED luminaire efficacy: at least 110 lm/W
- Power: 25-30 W
- Luminous flux: at least 3100 lm
- Correlated colour Temperature: At least 4000 K (Day light)
- Life span: At least 40,000 hrs

## **TYPE D**

### Emergency Light Fittings

- The electrical supply for the Emergency Exit Luminaires shall be of 230 V, 50 Hz.
- The Emergency Exit Luminaires shall be surface mounting and non-maintained type.
- The Emergency Exit signs shall be of white & green silk-screened pictogram with an optimum contrast value between the pictogram and the background luminance. Luminous flux to be at least 180 lm with autonomy of 3 hours minimum.

### **7.0a Wall Fans**

The Wall Fans shall have the following specifications:

- AC supply 230V/50Hz
- ON/OFF Switch with Power ON Neon Indicator
- Diameter of sweep around 400-450mm
- Integral 3 speed Regulator
- Fitted with in built thermal protection
- Cord Operated and Swing Mechanism
- Noise level not greater than 50 dBA at 1 m on high speed
- Easily removable metallic safety grille
- Manufactured to IEC 60335-2-80

The fan shall be provided c/w a power socket with neon indicator.

### **7.0b Extractor Fans**

Extractor Fans shall be to the following specifications:

- a) Wall/glass mounted
- b) Steel protected by polyester spray paint or High impact resistant thermoplastics
- c) Single phase 230 V, 50 Hz
- d) Air flow rate: around 350 m<sup>3</sup>/h (100 l/s) /
- e) Motor/electrical connection protected to IP 55
- f) Automatic external shutters to prevent ingress of water
- g) Removable safety grille for maintenance/servicing
- h) Noise level shall not be greater than 50 dBA at 1 metre.
- i) Wired remote switch for fan speed control
- j) Connected to PIR Controller for presence detection in Toilets

## **8.0 Air Conditioners**

Air Conditioner of capacities as specified in drawings shall be supplied, installed, commissioned and tested at the locations shown on the drawings. The units shall be to the specifications given below.

### **A. Split Wall Mounted Air Conditioner**

#### **Indoor unit:**

1. The units shall be inverted type of capacity as specified
2. The units shall be of the wall mounted type, slim, compact and of elegant design
3. Horizontal air flow with Orientable 4 way Air Deflection
4. Auto/Variable fan speed and thermostatic temperature control
5. Wireless LCD Remote Control Operating Unit
6. Auto Restart feature
7. One touch anti fungus electrostatic multistage air filter
8. Aluminium Coil Fin & Seamless Copper Tube
9. Environmentally friendly refrigerant
10. Variable Speed Control on compressor (DC Inverter Technology)

Capacity Btu/hr	Noise level at 1 metre at high fan speed/high cool
12,000	42 dBA
36,000	48 dBA

**Outdoor Unit:** 1. Weatherproof and suitable for use in tropical climates  
2. Rotary type compressor with EER> 3.2

### **GENERAL NOTES for electrical works**

1. Quotation for the above shall include supply, installation, testing and commissioning.
2. Delivery period after order is placed shall be mentioned.
3. Original leaflet containing technical data shall be attached to the quotation as proof of compliance with specifications.
4. Make and country of origin of the air conditioner shall be clearly specified.
5. The compressor of the air conditioner shall be guaranteed for a period of **5 years** and all other parts shall be guaranteed for a period of at least 1 year. These guarantee periods shall be effective only as from the date of successful commissioning of the air conditioner.
6. The position of the indoor/outdoor units may be subject to changes, if any, and this shall be considered by the bidder when quoting. Note that no variation will be accepted upon this item after award of this contract.
7. The contractor shall undertake all the electrical installations from the existing DB to the outdoor unit and indoor unit of the air conditioner using appropriate MCB, RCD, cables and trunking. **A DP switch with neon of appropriate rating will be supplied and installed for the indoor unit of the air conditioner by the Electrical Contractor.**
8. Any supports, mounting brackets, etc. (to be hot dipped galvanised) shall be supplied and installed by the successful bidder, who is expected to make a site visit before quoting. Should the indoor/outdoor unit of the air conditioner require some base (metal or concrete), this shall be provided by the bidder who shall quote for this item too.
9. The air conditioner shall be provided with suitable drain pipes, with sufficient slope for perfect drain. The drain pipes shall be leak proof and shall be securely fixed as and where required on the wall inside and outside the building till about 50 mm from ground level (outdoor) or connected to the nearest service drain.
10. The installation of the air conditioners may necessitate some civil and masonry works (drilling of holes in order to pass the pipes) and/or modifications to window panes/frames/metal work which shall be undertaken by the successful bidder and these openings shall be properly sealed in order to avoid leakage or loss of cool air. It is imperative for the bidder to include civil works separately in his quotation.
11. All the refrigerant pipes (which shall be vapour sealed) and drain pipes inside the building shall be enclosed within trunkings of suitable dimensions and shall be securely fixed to the wall. The successful bidder shall be expected to execute a high-quality trunking work by making use of accessories (i.e. angle exterior, interieur, embout, jonction, etc.).
12. The air conditioner shall be equipped with wireless remote control by means of which the air conditioners may be switched on and off, the temperature and fan speed may be controlled and from which one may read the room/office temperature via an LCD display.
13. The air conditioner shall be equipped with appropriate valves along the refrigerant pipes so as to allow isolating and separating the indoor unit from the outdoor unit without any loss of refrigerant.
14. The bidder shall submit as part of the contract, upon completion of works, a comprehensive operations and maintenance manual inclusive of an exploded diagram of the air conditioner showing the different parts and associated part numbers.
15. The bidder shall, upon completion of works, test the air conditioner in the presence of the Project Manager. All test equipment (decibel meter etc.) to be provided by the Contractor. Test certificates shall be submitted in duplicate copies to the Client.
16. The bidder shall provide free servicing on a quarterly basis during the one year guarantee period. Such servicing shall consist of cleaning of filters and checking the performance of the unit/s. The reports shall be submitted to the Ministry.
17. Any breach to comply with the above during quotation shall lead to disqualification of the bidder

## **9. Main control and indicating panel.**

The main flush mounted panel shall be located in the Hall or as specified

It shall consist of a Conventional Fire Alarm Panel with the following features:

1. Individual zone alarm relays
2. Individual zone isolation
3. One man walk test facility without interruption to rest of system
4. Monitored outputs for open & short circuit faults
5. Repeater panels - to enable essential signals from main panel to be repeated as specified
6. Integral power supply to provide standby power in case of mains and generator failure. (Maintenance free Nickel cadmium batteries and charger)
7. Integral Manual Call Points, Sounders and Strobe Flashers
8. Micro processor based modular upgradable design for sequential polling of devices.

The main LCD text display & LED indicator panel shall have the following indications: Status, Fire alarm, Maintenance alarm, Device fault, System faulty, Auto reset, Test mode, Supply fault, Mimic display etc.

## **10. TESTS ON COMPLETION**

On completion of all the installations, the electrical contractor shall carry out tests in the presence of Project Coordinator (Electrical) and submit to the ministry three signed copies of the tests certificates by a Registered Professional Electrical Engineer.

Testing and measuring equipment shall be of very good quality and shall be provided by the electrical contractor in all cases.

**The following tests shall be carried out:**

- (i) Insulation test
- (ii) Continuity and Polarity tests
- (iii) Earth loop impedance test
- (iv) Earth Resistance test
- (v) RCD tripping time
- (vi) Operation of protective devices
- (vii) Load test
- (viii) Voltage test
- (ix) Phase Sequence and Phase Rotation tests
- (x) Functional Test
- (xi) Any other test requested by the Project Coordinator (Electrical)

### **Tests on equipment/plant/electrical device**

Tests on the above shall be carried out as per Manufacturer's recommendations or as directed by the Project Coordinator (Electrical).

## DRAWINGS

Upon completion of the works, the bidder shall submit to the Ministry three copies of as “fitted diagrams” signed by the Registered Professional Electrical Engineer

- i. The Electrical installations and layouts
- ii. Schematic diagrams of circuits and protective gears
- iii. Location of Distribution Boards & cable routes
- iv. Earthing System

### B. DRAWINGS

<b>UPGRADING OF YOUTH CENTRES</b> <b>Multipurpose Synthetic Pitches</b>	
LIST OF DRAWINGS	
<b>DRAWING TITLE</b>	<b>Drawing Number</b>
EXISTING PITCH - MAHEBOURG	MAH/015/NYC001
PROPOSED MULTIPURPOSE PITCH	MAH/015/NYC002
EXISTING PITCH - HELVETIA	HEL/015/NYC005
PROPOSED MULTIPURPOSE PITCH	HEL/015/NYC006
BLOCKWALL & PANEL RIB FENCING DETAILS	DOC/015/NYC011
ABSORPTION DRAIN AND NEW TARMAc DETAILS	MSP/015/NYC012



## Section IV: General Conditions of Contract and Particular Conditions of Contract

Any resulting contract shall be placed by means of a Letter of Acceptance and shall be subject to the General Conditions of Contract (GCC), (Ref: W/GCC10/12-21), for the Procurement of Works (available on website [ppo.govmu.org](http://ppo.govmu.org)) except where modified by the Particular Conditions of Contract below.

Procurement Reference Number: **NYC/PROC/22/2021-2022**

The clause numbers given in the first column correspond to the relevant clause number of the General Conditions of Contract.

### Particular Conditions of Contract

A. General	
<b>GCC 1.1 (r)</b>	The Employer is <b>National Youth Council</b> .
<b>GCC 1.1 (v)</b>	The Intended Completion Date for the whole of the Works shall be 180 calendar days as from the signature of contract.
<b>GCC 1.1 (y)</b>	The Project Manager is Mr. M Balloo.
<b>GCC 1.1 (aa)</b>	The Site is located at Mahebourg and Helvetia
<b>GCC 1.1 (dd)</b>	"The Start Date shall be <i>7 days from the handing over of site</i> .
<b>GCC 1.1 (hh)</b>	The Works consist of new tarmac, resurfacing, gates, synthetic pitches etc all as described in the scope of works.
<b>GCC 2.2</b>	Sectional Completions are: N/A
<b>GCC 2.3(i)</b>	The following documents also form part of the Contract: N/A
<b>GCC 3.1</b>	The language of the contract is English The law that applies to the Contract is the law of Mauritius.
<b>GCC 5.1</b>	The Project manager may delegate any of his duties and responsibilities.
<b>GCC 8.1</b>	Schedule of other contractors: N/A
<b>GCC 13.1</b>	<p>Except for the cover mentioned in (d)(i) hereunder, the other insurance covers shall be in the joint names of the Contractor and the Employer and the minimum insurance amounts shall be:</p> <ul style="list-style-type: none"> <li>a. for the Works, Plant and Materials: (for <i>the full amount of the works including removal of debris, professional fee etc...</i>)</li> <li>b. for loss or damage to Equipment: MUR 500,000</li> <li>c. for loss or damage to property (except the Works, Plant, Materials, and Equipment) in connection with Contract <i>for an amount representing the value of the properties that are exposed to the action of the contractor in the execution of the works. It will extend to the property of the Procuring Entity as well</i>). MUR 1,000,000</li> <li>d. for personal injury or death: <ul style="list-style-type: none"> <li>i. of the Contractor's employees: <i>[The Contractor shall take an adequate insurance cover for its employees for any claim arising in the execution of the works]</i>. Rs 1,000,000</li> <li>ii. of other people: <i>[This cover shall be for an adequate amount for Third Party extended to the Employer and its representatives]</i>. MUR 3,000,000</li> </ul> </li> </ul>



	<p>e. <u>for loss or damage to materials on-site and for which payment have been included in the Interim Payment Certificate, where applicable.</u></p> <p>The Contractor shall choose to take the insurance covers indicated above as separate covers or a combination of the Contractor's All Risks coupled with the Employer's liability and First Loss Burglary, after approval of the Employer. All insurance covers shall be of nil or the minimum possible deductibles at sole expense of the contractor.</p>
<b>GCC 14.1</b>	Site Data are: N/A
<b>GCC 20.1</b>	The Site Possession Date(s) shall be <i>the date of handing over of site</i> .
<b>GCC 23.1 &amp; GCC 23.2</b>	Appointing Authority for the Adjudicator: <b>No Adjudicator shall be appointed for this Contract.</b>
<b>GCC 24.</b>	<p>In case a dispute of any kind arises between the Employer and the Contractor in connection with, or arising out of, the contract or the execution of works or after completion of works and whether before or after repudiation or other termination of Contract, including any dispute as to any opinion, instruction, determination, certificate or valuation of the Employer's Representative, the matter in dispute shall, in the first place, be referred in writing to the employer's representative, with a copy to the other party.</p> <p>The Employer and the Contractor shall make every effort to resolve the dispute amicably by direct informal negotiation. If, after twenty-eight (28) days, the parties have failed to resolve their dispute or difference by such mutual consultation, then either the Public Body or the Contractor may give notice to the other party of its intention to refer the matter to</p> <p>"the competent courts of Mauritius"</p>
<b>B. Time Control</b>	
<b>GCC 25.1</b>	The Contractor shall submit for approval a Program for the Works within 28 days from the date of the Letter of Acceptance.
<b>GCC 25.3</b>	<p>The period between Program updates is 07 calendar days.</p> <p>The amount to be withheld for late submission of an updated Program is <i>MUR 2,000</i>.</p>
<b>C. Quality Control</b>	
<b>GCC 33.1</b>	The Defects Liability Period is: 365 calendar days.
<b>GCC 34.1</b>	<p>Delete sub-clause 34.1 and replace by the following:</p> <p>Should any defect arise during the contractual period and up to the end of the Defects Liability Period and the Contractor fails to correct the Defect within the time specified in the Project Manager's notice, this shall constitute a breach of the Contractor's obligations under the contract. The Project Manager shall assess the cost of having the defect corrected and recover the money from monies due to the contractor or from the Performance Security.</p>
<b>GCC 39.7</b>	Interim Payment for Plant and Material on site <b>is not</b> applicable.
<b>D. Cost Control</b>	
<b>GCC 40.1</b>	Amend clause 40.1 by replacing 21 days by 7 and 42 days by 28 days.
<b>GCC 41.1 (I)</b>	<i>Cyclone class III, flooding, torrential rain, rain of intensity not less than 20mm or any other events beyond the control of the contractor.</i>
<b>GCC 43.1</b>	The currency of the Employer's country is: <b>Mauritian Rupees.</b>
<b>GCC 44.1</b>	The Contract is not subject to price adjustment.
<b>GCC 45.1</b>	GCC Clause 45 is not applicable.

<b>GCC 46.1</b>	<p>The liquidated damages for the whole of the Works are MUR 4,000 per calendar day.</p> <p>The maximum amount of liquidated damages for the whole of the Works is 10% of the Contract price.</p>
<b>GCC 47.1</b>	The Bonus for the whole of the Works is not applicable.
<b>GCC 48.1</b>	The Advance Payments shall be <i>10% of contract value</i> and shall be paid to the Contractor within 10 days after signature of the Contract and submission of the approved Advance Payment security by the contractor no later than <i>15 days from the date of the letter of acceptance</i> .
<b>GCC 49.1</b>	The Performance Security amount is <i>10% of contract sum and inserted at contract signature stage</i> .
<b>E. Finishing the Contract</b>	
<b>GCC 56.1</b>	The date by which operating and maintenance manuals are required is <i>on practical completion date of the project</i> . The date by which “as built” drawings are required is <i>on practical completion date of the project</i> .
<b>GCC 57.2 (g)</b>	The maximum number of days is: 60 days
<b>GCC 59.1</b>	The percentage to apply to the value of the work not completed, representing the Employer’s additional cost for completing the Works, is 20%.

## Section V - Contract forms

### Performance Security

\_\_\_\_\_ *Bank name- Name and Address of Issuing Branch or*  
*Office*\_\_\_\_\_.

**Beneficiary:** \_\_\_\_\_ *(Name and Address of Public Body).*

**Date**\_\_\_\_\_

**PERFORMANCE GUARANTEE No.:** \_\_\_\_\_

We have been informed that \_\_\_\_\_ *[name of the Contractor]*  
(hereinafter called "the Contractor") has entered into Contract No \_\_\_\_\_  
*[reference number of the Contract]* dated \_\_\_\_\_ with you, for the execution of  
\_\_\_\_\_ *[name of Contract and brief description of Works]*  
\_\_\_\_\_ (hereinafter called "the Contract").

Furthermore, we understand that, according to the conditions of the Contract, a performance security is required.

At the request of the Contractor, we \_\_\_\_\_  
*[name of Bank/Insurance Company]* hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of \_\_\_\_\_ *[amount in figures (amount in words)]*

such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation(s) under the Contract, without your needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire and returned to us not later than twenty- one days from the date of issuance of the Defects Liability Certificate, calculated based on a copy of such Certificate which shall be provided to us, or on the \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_, whichever occurs first. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

**Seal of bank and**

**Signature(s)**\_\_\_\_\_

# Advance Payment Security

**[Bank's Name, and Address of Issuing Branch or Office]**

**Beneficiary:** \_\_\_\_\_ **[Name and Address of Employer]**

**Date:** \_\_\_\_\_

**Advance Payment Guarantee No.:** \_\_\_\_\_

We have been informed that \_\_\_\_\_ **[name of the Contractor]**  
(hereinafter called "the Contractor") has entered into Contract No \_\_\_\_\_  
**[reference number of the Contract]** dated \_\_\_\_\_ with you, for the execution of  
\_\_\_\_\_ **[name of contract and brief description of Works]** \_\_\_\_\_  
(hereinafter called "the Contract").

Furthermore, we understand that, according to the Conditions of the Contract, an advance payment in the sum \_\_\_\_\_ **[name of the currency and amount in figures]**<sup>1</sup>  
\_\_\_\_\_ **[amount in words]** \_\_\_\_\_

\_\_\_\_\_ is to be made against an advance payment guarantee.

At the request of the Contractor, we \_\_\_\_\_  
**[name of the Bank/Insurance Company]** hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of \_\_\_\_\_  
**[name of the currency and amount in figures]** \* \_\_\_\_\_  
( \_\_\_\_\_ **[amount in words]** \_\_\_\_\_ )

upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation under the Contract because the Contractor used the advance payment for purposes other than the costs of mobilization in respect of the Works.

It is a condition for any claim and payment under this guarantee to be made that the advance payment referred to above must have been received by the Contractor on its account number \_\_\_\_\_ **[Contractor's account number]** \_\_\_\_\_  
at \_\_\_\_\_ **[name and address of the Bank/Insurance Company]** \_\_\_\_\_

The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Contractor as indicated in copies of interim statements or payment certificates which shall be presented to us. This guarantee shall expire, at the latest, upon our receipt of a copy of the interim payment certificate indicating that eighty (80) percent of the Contract Price has been certified for payment, or on the \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_<sup>2</sup>, whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

**[Seal of Bank/Insurance Company and Signature(s)]** \_\_\_\_\_

## Note:

All italicized text is for guidance on how to prepare this demand guarantee and shall be deleted from the final document.

1 The Guarantor shall insert an amount representing the amount of the advance payment denominated either in the currency(ies) of the advance payment as specified in the Contract, or in a freely convertible currency acceptable to the Employer.

2 Insert the expected expiration date of the Time for Completion. The Employer should note that in the event of an extension of the time for completion of the Contract, the Employer would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Employer might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months][one year], in response to the Employer's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."

Date

Name and address of the contractor



Mezzanine, Citadelle Mall  
Port Louis  
T: 206 1784  
E: [nycmauritius@gmail.com](mailto:nycmauritius@gmail.com)

## Letter of Acceptance

Subject: \_\_\_\_\_ **[Notification of Award Contract No.]** \_\_\_\_\_

This is to notify you that your Bid dated \_\_\_\_\_ **[insert date]** for execution of the \_\_\_\_\_ **insert name of the contract and identification number, as given in the Appendix to Bid]** \_\_\_\_\_ for the Accepted Contract Amount of .Rs \_\_\_\_\_ **[insert amount in numbers and words and name of currency]**, exclusive of VAT, as corrected and modified in accordance with the Instructions to Bidders is hereby accepted by *(insert name of Corporate Body)*.

You are requested to furnish the Performance Security in accordance with the General Conditions of Contract, using for that purpose of the Performance Security Form included in Section V (Contract Forms) of the Bidding Document.

Authorized Signature: \_\_\_\_\_

Name and Title of Signatory: \_\_\_\_\_

Name of Agency: \_\_\_\_\_

*Attachment: Contract Agreement*

# Contract Agreement

THIS AGREEMENT made the \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_,  
between \_\_\_\_\_ **[name of the Employer]**  
(hereinafter "the Employer"), of the one part, and \_\_\_\_\_  
**[name of the Contractor]** (hereinafter "the Contractor"), of the other part:

WHEREAS the Employer desires that the Works known as \_\_\_\_\_  
**[name of the Contract]** should be executed by the Contractor, and has accepted a Bid by the Contractor for the execution and completion of these Works and the remedying of any defects therein,

The Employer and the Contractor agree as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract documents referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement. This Agreement shall prevail over all other Contract documents.
  - a) the Letter of Acceptance
  - b) the Bid
  - c) the Addenda Nos \_\_\_\_\_ **[insert addenda numbers if any]**
  - d) the Appendix to the General Conditions of Contract
  - e) the General Conditions of Contract;
  - f) the Specification
  - g) the Drawings; and
  - h) the completed Schedules,
3. In consideration of the payments to be made by the Employer to the Contractor as indicated in this Agreement, the Contractor hereby covenants with the Employer to execute the Works and to remedy defects therein in conformity in all respects with the provisions of the Contract.
4. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of Mauritius on the day, month and year indicated above.

Signed by: \_\_\_\_\_

for and on behalf of the Employer

in the  
presence of:

Witness, Name, Signature, Address, Date

Signed by: \_\_\_\_\_

for and on behalf the Contractor

in the  
presence of:

Witness, Name, Signature, Address, Date